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ABSTRACT

A curriculum guide for grade 8, the document is devoted to the occupational cluster "Public Service Occupations." It is divided into six units: education, public utilities, community social and health services, law enforcement agencies, fire departments, and the postal system. Each unit is introduced by a statement of the topic, the unit's purpose, main ideas, quests, and a list of career opportunities (positions) available in that area. Next, the areas of language arts, mathematics, science, social studies, home economics, industrial arts, music, and physical education (when applicable) are subdivided into purpose, objectives, activities, materials, and notes with a statement relating these categories to the unit topic. The document is one of ten curriculum guides at the seventh and eighth grade levels presenting a career education emphasis. The teacher's manual for the series is available as CE 001 041. The other guides are: consumer and homemaking (CE 001 042); communications and media (CE 001 043); fine arts and humanities (CE 001 044); construction and environment (CE 001 045); agri-business, natural resources, marine sciences (CE 001 046); health occupations (CE 001 048); manufacturing, marketing and distribution, business and office occupations (CE 001 049); transportation (CE 001 050); and hospitality, recreation and personal service occupations (CE 001 051). (AG)

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PUBLIC SERVICE occupations

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PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA
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CAREER DEVELOPMENT EXEMPLARY PROJECT

An Interdisciplinary Course of Study for Grades Seven and Eight

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CAREER DEVELOPMENT EXEMPLARY PROJECT

Curriculum Guides Prepared by

THE METROPOLITAN EDUCATIONAL COUNCIL FOR STAFF DEVELOPMENT

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GRADE 8

CAREER CLUSTER MODULE

I

PUBLIC SERVICE OCCUPATIONS

UNITS/TOPICS

1. Education
2. Public Utilities
3. Community Social and Health Services
4. Law Enforcement
5. Fire Department
6. The Postal System

Career Development Curriculum Guide: Grade 8
CLUSTER/MODULE: PUBLIC SERVICE OCCUPATIONS

PURPOSE:

To explore occupational opportunities within public services.

To broaden the students' concepts of public service operations; organization, functions, financing, and political aspects.

To develop the need for public services.

To make students aware of the occupations available in public services in Washington, D.C.

SYNOPSIS:

The Public Service Occupations cluster will emphasize occupational opportunities in Washington, D.C.: the Federal Government as the main employer, the comparative scarcity of industrial employment, the high percentage of occupations requiring technical, semi-technical, and higher educational achievement. It seeks to establish more positive attitudes toward public service occupations. The unique political position of the municipality of Washington, D.C. and its influence on the availability of certain public services and their inherent occupational opportunities is one of the most important aspects of this cluster.

The topics in this cluster are:

1. Education
2. Public Utilities
3. Law Enforcement (Municipal and Federal)
4. Community Social and Health Services
5. Fire Department
6. The Postal System

HIGH IMPACT ACTIVITIES:

1. Role playing
2. Student exchange with another junior high school (e.g., Deal Jr. H.S.)
3. Rap session with two moderates and two activists
4. Visit to the school's boiler room, switchboard, and electrical system
5. "Adopt a Cop" Day

HIGH IMPACT ACTIVITIES -- Continued

6. Demonstrations by law enforcement representatives in Minischool assemblies.
7. Visit to the coroner
8. Rap session on "Community Control of the Police"
9. Demonstrations by local social and health workers
10. Tours of Main and Neighborhood Post Offices
11. Make Mr. Zip posters for the entire school, using original slogans
12. Films on utility workers
    a. "The Odds Against" (32 min.)
    b. "Not All Cops - Not All Kids" (30 min.)
    c. "Health, You and Your Helpers" (Twining #1588.) (11 min.)
    d. "Health Careers"
    e. "So You Want To Be a Nurse?"
    f. "Fahrenheit 451" (feature film)
    g. "Fire Safety Is Your Problem" (Twining #958)
    h. "Fire Prevention in the Home (Twining #1817)
    i. "Fire-fighters" (Twining #1120)
13. Tours of F.B.I. and Park Police Headquarters

COMMON RESOURCES:

1. National Gallery of Art
2. U.S. Post Office
3. The Postal Laboratory, U.S. Post Office, Wash., D.C.
4. Fire Department
5. Metropolitan Police Department
6. U.S. Department of Labor, Bureau of Labor Statistics
7. Potomac Electric Power Company, Benning Road, NE
8. Washington Gas Light Company
9. Chesapeake and Potomac Telephone Company
10. International Telephone and Telegraph Company
11. Local Radio and Television Stations
12. Local and State Departments of Education
13. United States Civil Service Commission
14. International Association of Chiefs of Police, 1319 18th St., NW
15. International Association of Fire Chiefs, 1723 K St., NW

CLUSTER 1 - Grade 8

PUBLIC SERVICE OCCUPATIONS

Unit/Topic 1 - Education

Topic: Education: The path to future vocational and professional opportunities.

Purpose: To explore occupational opportunities within public education:

1. administrative
2. instructional
3. supportive
4. transportational

To broaden the students concepts of public education:

1. organization
2. financing
3. political aspects

   (a) Brown vs. Board of Education
   (b) Skelly Wright Decree

To provide an awareness of historical background of public education.

To compare the various educational systems (Washington, D.C. with others)

Main Ideas:

1. Education brings economic rewards and social advancement.
2. Education perpetuates a democratic society.
3. Education promotes an appreciation of all cultures.
4. Education improves self-regard.

Quests:

1. Interview a school superintendent (ex. Dr. Scott), a judge (ex. J. Skelly Wright) and a political activist (ex. Julius Hobson).

Career Opportunities:

1. Unskilled

   Cafeteria worker, clerk (general), clerk, lunch, janitor

2. Semi-Skilled

   Maintenance man, switchboard operator, tape librarian

Career Opportunities -- Continued

3. Skilled

Licensed practical nurse, stenographer

4. Professional

Accountant, agriculture teacher, agronomist, anthropologist, architect, art director, astronomer, athletic coach, athletic trainer, attendance officer, biochemist, biologist, chemist, counselor, dietician, economist, educational psychologist, educational technologist, entomologist, geographer, geologist, historian, lawyer, librarian, mathematician, metallurgist, meteorologist, microbiologist, physicist, political scientist, principal, psychologist, rural sociologist, school counselor, sociologist, speech and hearing therapist, speech pathologist, statistician, teacher, college, teacher, diagnostic and prescriptive, teacher, elementary school, teacher, kindergarten, teacher, secondary school, teacher, special education, zoologist

LANGUAGE ARTS

Purpose: To learn about the history of American education.

To appreciate the role of education in personal and social growth.

To use autobiography as a literary form.

Objectives: Upon completion of work in this unit the student should be able to:

1. Write a chronological account of the development of the American public school system or some aspect of that development.

2. Cite one or more outstanding American educators and their contributions, based on study of autobiographies.

3. Demonstrate improvement in overall literacy skills; specifically:

   a. Establishing a written chronology of American education.
   b. Using notes to write or give orally a narrative report on American education.

Activities: To accomplish these objectives the student may engage in activities such as:

1. View the film, "History of American Education" and write a review/summary in correct chronological sequence.

2. Read and take notes on autobiographical accounts of Horace Mann and other key educators.

3. Write -- or give orally from written notes -- research reports on educators for whom schools in Washington, D. C. have been named: e.g., Bertie Backus, Miner, etc.

4. Write and then record on tape, personal autobiographies highlighting educational experiences that have facilitated (or hindered) personal and social growth. (For music tie-in, may use a musical setting).

Activities -- Continued

5. In re: High Impact Activities -- Rap Session. Prepare questions beforehand, take notes during, and prepare a write-up (or script) for oral presentation.

Materials:

1. Coronet Films: "Education, Colonial Times to Now"
2. Dittoed excerpts from autobiographies of great American educators; or records/tapes. Imperial International Learning Corporation has packets (tape plus worksheet) on Mary Bethune, Booker T. Washington, and others.
3. Blank tape, recorder for personal autobiographies.

MATHEMATICS--System of Whole Numbers and Fractions

Purpose: To increase the student's appreciation that many persons trained and working in non-scientific areas must know mathematics to function effectively in their jobs.

Upon completion of work in this unit the student should be able to:

1. Calculate grade point averages as a registrar might do in a college or university admissions office (using up to three-digit numbers).

2. Calculate averages as a teacher might do in determining grades (up to three digits).

3. Calculate the budget for a given proposal for an education project.

4. Convert results of an educational survey presented in whole numbers to fractions and present them graphically.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Computing the grade-point average from the final grades earned at the end of the last semester (or for hypothetical grades) as one would do it in Junior High School and as one would do it in a college or university. For the semester hour concept, use the number of hours that a student attended a certain class (15 class hours equals one semester hour).

2. Computing the average score for a test, using each area, such as whole numbers, fractions, decimals, etc., as an individual test performance. Also have the class compute the class average of the same test performance.

3. Tabulating the number of students interested in each career indicated from a survey conducted in the mini-school of current career interests of the students and constructing

Activities -- Continued

the fractions associated with each career (number indicating over total number of indications). Later, when they have been taught about percentages and percents, the students may calculate the percents for each career. This activity may be used to show the usefulness of calculating percents. Tie-in with Social Studies to conduct the survey.

4. Calculate the total amount of the budget needed to finance a proposal they have written.
   Tie-in with Language Arts (proposal writing and evaluation).
   Tie-in with Industrial Arts (print and distribute proposals).

Materials:

1. Survey results (from Social Studies work)
2. Proposal
3. Lists of sets of grades

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Education

SCIENCE--Light as a Source of Energy

Purpose: To help the students realize that education or training for careers begins early; specifically, that the science teacher and building engineer start learning the fundamentals of the behavior of energy sources, like light, magnetism and electricity, in the junior high school classroom.

Both the teaching about and the actual maintenance of these energy sources are more effective when the basic principles of their operation are understood. Thus, entry into these occupations depends, in part, upon adequate grasp of these basic principles as a foundation.

Light turns us on. Without light man would be unable to function as he does. Furthermore, modern man's life style depends heavily on adequate provision of artificial lighting, without which the day would end literally at sundown. The generation and supply of artificial light and the maintenance of our sources of artificial light require special skills, which, in turn, must be based on an understanding of the principles of light, including the role of electricity in artificial lighting.

Objectives: Upon completion of work in this unit the student should be able to:

1. Describe orally why the work of the building engineer in his task of maintaining adequate lighting for the school is important.

2. Write statements that answer the following questions: What is visible light?, How does it travel?, and, what is its speed?

3. Demonstrate an understanding of the properties diffusion, reflection, and refraction by passing light energy through various materials.

4. Define various colors as specific wave lengths of light through experimentation with prisms and filters.

Activities: To accomplish these objectives the students may engage in activities such as:

1. Resource Person/Field Trips: Interview the building engineer and go with him on an inspection tour of the lighting facilities of the school. Take notes to use in an oral description of his duties.

2. Calculate the total wattage of light needed for a room; for all rooms; a hall; all halls, and the total building. Multiply the lighting requirements for one room and hallway by the total number of rooms and hallways for the magnitude of lighting used in the school. Tie-in with Mathematics.

3. Define visible light as a band of frequencies in the electromagnetic spectrum. Demonstrate the wave nature of light with the vibrating string, a rope, or a steel spring. Define amplitude frequency and wave length.

4. Discuss the speed of light. Calculate the time light travels from sun to earth, from sun to full moon to earth, from a man-made satellite to earth. Show D. C. Film #874: "Speed of Light." Discuss the term "luminous object." Tie-in with Mathematics.

5. Experiment with a light source, mirror, beaker of water and pencil, penny and cup, and transparent, translucent and opaque materials to discover the properties of reflection, refraction and diffusion. Record observations carefully. Meet in small groups to analyze the data and form conclusions. Group leaders report conclusions to the class and compare results. Tie-in with Mathematics.

6. Demonstrate a large prism and strong source of light (or fish tank and sunlight) to form the spectrum. Explain the laws of refraction of light, and wave lengths. Tie-in with Mathematics.

7. Impose various filters on the light source of an overhead projector and in front of the

Activities -- Continued

Prism Spectrum. Formulate a hypothesis about the disappearance of certain wave lengths. Discuss this with the teacher.

8. Make up objective test items summarizing all laws, facts and vocabulary of light. Summarize them in class discussion. Tie-in with Language Arts.

Materials:

1. Rulers
2. Long steel spring
3. Long rope
4. Vibrating string apparatus
5. Beakers
6. Cups
7. Transparent, translucent and opaque sheets of material
8. Glass or lucite prism
9. Mirrors
10. Various colored cellophane or glass filters
11. Overhead projector
12. Primary color (red, yellow and blue) filters
13. D.C. Film #874: "Speed of Light"
14. Film resources from D. C. Schools Audio-Visual Department:
    a. "How to Bend Light," #1512, 11 min. -- reflection and refraction
    b. "Light and Color" (I-S), #1518, 14 min., color -- Why an object of a certain color appears that way to us
    c. "Light and Shadow" (I), #311, 10 min., -- Reflection; luminous, transparent, opaque
    d. "Light and What It Does" (P-I), #1519, 11 min., color -- Simple experiments
    e. "Nature of Color" (S), #972, 11 min., color -- Rainbow; absorption; reflection; mixing; color in art
    f. "Speed of Light" (S), #874, 14 min. -- History of attempts to measure the speed of light from Galileo to Michelson
15. Filmstrips:
    a. "Light and Color" (I-S), #1593, 38 frames -- Origin of colors reflection comparison of eye to camera

Materials -- Continued

b. "Light and How It travels" (I-S), #1594, 44 frames -- Color: a form of energy; reflection; transmission; refraction
c. "Light, Heat and Sound" (I-S), #1512, 31 frames, color -- Introductory in nature

16. Books in school library:
a. Experiments with Light, Nelson F. Beeler; Crowell, 1957. (535B)
b. Light and Sight, Charles Gramet; Abelard-Schuman, 1963. (535G)
c. The First Book of Light, George R. Harrison; F. Watts, 1962. (535H)
d. Beginning Science With Mr. Wizard: Light, Don Herbert; Doubleday, 1960. (535H)
e. Light A Single Candle, Beverly Butler; Dodd, Mead, 1962. (FB)
f. Fun and Experiments with Light, Mae Freeman; Random House, 1963. (535F)

SOCIAL STUDIES--Historical Background of Public Education

Purpose: To increase students' interest in occupational opportunities in education while developing their basic social studies skills and attitudes.

To increase the concern of students about our educational system. They spend an average of six hours per day approximately 182 days a year in school. This attendance is required by law. Today's students are living in a world where the very existence of the public school is being challenged. They need to be aware of the historical background of free, public education and the many court decisions that have affected their educational system. Since in our country with a population of approximately 200 million, over fifty million people are involved in some phase of learning, teaching, and/or other related educational services. We feel that the students should be made aware of the occupational opportunities available in education.

This topic has been divided into three sub-topics, each of which has its own purpose, objectives, activities, etc.: 1) The historical background of free, public education; 2) Court decisions affecting education; 3) Educational services and how they are operated.

To develop an awareness of the historical background of public education; specifically, that education was not always free or public; that free, public education was developed to help ensure a strong nation.

The history of America parallels in large part the industrial and technological "revolutions" and we have been the dominant social force during the past century in these changes. The development of an industrial and particularly of a technological society depends critically on an educated populace having the essential skills needed to develop and apply technology. Our free, public education system has developed, historically, to meet this need.

Objectives: Upon completion of the work in this unit the student

Objectives -- Continued

should be able to:

1. State why education is a necessity, not only in a democratic society, but in any progressive society, especially as a foundation for industrialization and technological growth.

2. Demonstrate in writing an understanding of how the historical development of our education system resulted from the efforts of many interest groups by relating specific developments to specific groups.

3. Contrast "teacher-dominated" and "student-centered" classroom education and discuss problems involved in changing from the former to the latter.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Studying child labor practices/regulations:

   a. Display pictures of children working in factories. Tie-in with Art.
   b. Discuss the reasons why child labor practices resulted in child labor laws and the development of free, public education.
   c. Discuss in this context current child labor problems associated with migrant workers.

2. Role playing: Imagining that they are living during an earlier era and describing their schools in letters and diaries. Tie-in with Language Arts.

3. Open discussion: Developing a list of how the presence or absence of an adequate educational system might affect the growth of an "underdeveloped" nation; or the meaning of the assertion, "A strong nation is an educated nation."

Activities -- Continued

4. Mass migration of Blacks to the north:

   a. Display, make, or graph a chart of this. Tie-in with Art.
   b. Discuss factors responsible for this migration.
   c. Compare this migration with that of the "Okies."
   d. Pose the question, "How would it affect the United States were states allowed to control immigration -- or emigration -- the same way the USA does as a nation?"
   e. Relate the migration to the distribution of Blacks within urban-suburban-rual areas and the school.

5. Immigration trends to the U. S.:

   a. Display a map of the USA and the rest of the world.
   b. Discuss immigration trends to the U.S. in relation to the map. Summarize in writing the main trends.
   c. Compare immigration trends of recent date in relation to changes in the immigration law and discuss some of the factors involved in the earlier law and why changes were made. Make a list of the changes.

6. Quests:

   a. Prepare an oral report on discrimination in education against some group: the poor, women, Blacks, immigrants.
   b. Prepare a written review of an article or book describing one or more reform movements in education in the U.S. Tie-in with Language Arts.
   c. Prepare an oral/written statement of the role of education in the lives of persons such as Joseph Kennedy, Andrew Carnegie, Frederick Douglass, George Washington Carver, Booker T. Washington.
   d. Prepare a history of the junior high school the students are attending.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Education, SOCIAL STUDIES--Historical Background of Public Education

Materials:

1. Overhead projector
2. Transparencies: to be made by the teacher from related materials
3. Booklets:
   a. "Breakthrough for the Disadvantaged Youth" -- U. S. Department of Labor, Manpower Administration (1969). (For sale by Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402; price $2.00.)
   b. "Education and the Disadvantaged American" -- Educational Policies Commission, National Education Association (1962). (For sale by N.E.A., 1201 - 16th Street, N.W., Washington, D. C.; $1.25 per copy.)
4. Books:
   a. Story of the American Nation, Mabel Casner, et al.; Harcourt, Brace and World, Inc., New York, 1967.
   b. Building the American Nation, Jerome Reich and Edward Billet; Harcourt, Brace and World, Inc., New York, 1968.
   c. Eyewitness: The Negro in American History William Katz; Pitman Publishing Corporation, New York, 1968.
   d. The Free and the Brave, Henry F. Graff; Rand McNally and Company, Chicago, 1967.
   e. The Challenge of Our Heritage, A.G. Gelormino and M. R. Gotti; Oceana Publications, Inc., Dobbs Ferry, New York, 1970.
5. Pictures are available at AFL-CIO, Education Department, 815 - 16th Street, N.W., Washington, D.C. 20006:
   a. Early factories
   b. Early schools
6. Maps: (available at Social Studies Department, D. C. Public Schools)
   a. U. S. (political)
   b. World
7. Charts: based on Activity 4.

SOCIAL STUDIES--Court Decisions Affecting Education

Purpose: To explore court decisions affecting education.

Objectives: Upon completion of the work in this unit the student should be able to:

1. Gather data in support of or opposed to court decisions; specifically, in this unit, decisions affecting education.

2. State the specific Constitutional provisions related to specific Supreme Court decisions affecting education and to explain the relationship.

3. State the pro's and con's offered by proponents and opponents of specific Supreme Court decisions and to criticize these.

Activities: To accomplish these objectives the students may engage in activities such as:

1. Role play: Have students role-play a situation in education relevant to a specific Supreme Court decision; for example, a Black student trying to explain to a white student why so-called "free choice" arrangements can, in fact, perpetuate segregated education.

2. Open discussion: The "Civil Rights' Amendments" (13th, 14th, and 15th) -- to what extent have they really benefitted Negroes by enabling them to become "first class citizens"? Summarize in writing the major points in the discussion.

3. Open discussion: The "separate but equal" concept -- could it possibly be implemented democratically or is it inherently anti- or undemocratic?

4. Panel discussion: Which Supreme Court decision -- Brown v. the Board of Education, 1954 or Plessy v. Ferguson, 1896 -- best fulfills the intentions of the "Civil Rights' Amendments"? Poll class on support and opposition to these decisions and tabulate the results.

Activities -- Continued

5. Open discussion: Examine the Skelly Wright, Hobson v. Hansen, decision in regard to the following questions:

   a. Does the decision uphold the "Civil Rights' Amendments"?
   b. In a city where there is segregation in housing, is busing the best way to achieve integration in public schools?
   c. In Washington, D. C. or elsewhere, when Blacks attend separate schools, are the schools really equal?
   d. After the discussion try to answer the questions in writing.

6. Quests:

   a. Resource person: Interview an individual such as Julius Hobson, and present an oral report from notes taken during the interview.
   b. Newspapers have reported that there are differences in the courses offered east and west of Rock Creek Park. Prepare a written report, based on research, of these differences and the students' reactions to these differences. Tie-in with Language Arts.
   c. Have a group prepare a hypothetical presentation to the Supreme Court on a current issue affecting education, such as busing or the question of equal per student expenditures. Have both sides represented.

Materials:

1. Films
   a. Related films from school film catalogue
   b. Thurgood Marshall, 216-E, Eye Gate House, Inc., Jamaica, New York.
2. Newspapers: (Students must use vertical files.)
   a. Washington Post
   b. Washington Star

Materials -- Continued

3. Booklets:
   a. The Supreme Court in American Life, Leonard F. James; Scott, Foresman and Company, Chicago, 1964.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Education

SOCIAL STUDIES--Educational Services and How They Operate

Purpose: To expand the student concepts of the many services offered by their school and what is involved in running a school.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate an understanding of the operation of their school by:

   a. Listing at least five of the main services offered:

      1) custodial
      2) instructional
      3) administrative
      4) protective (aides and policemen)
      5) food services
      6) transportation
      7) engineering
      8) health protective

   b. Stating the person or position responsible for the following school services:

      1) custodians
      2) teachers
      3) principal, assistant principal, counselors
      4) community aides and policemen
      5) dietitian
      6) cafeteria workers
      7) bus drivers
      8) maintenance men
      9) nurse
      10) psychologist

   c. Listing the following main components of school services:

      1) Administrative
      2) Instructional
      3) Supportive
      4) Protective
      5) Custodial
      6) Transportative

   d. Stating the person or position responsible for each of these components.

   e. Describing briefly how the members of the Board of Education, its chairperson, and the Superintendent of Schools are selected.

2. Substantiate an opinion on, "Is Education 'big business'?" by:

   a. Listing the Washington, D. C. education budget for Browne or a comparable school

Objectives -- Continued

for the year and the amounts for such categories as construction, maintenance, materials; per pupil allotments.

b. Listing the rough salary ranges for various administrative and instructional personnel, such as principal, assistant principal, teachers (based on experience and degrees).

c. Describing briefly how discriminatory practices affect the allocation and expenditure of the budget funds and access to positions (e.g., higher-level administrative, school construction jobs, etc.).

d. Describing briefly actual or possible means for countering discriminatory practices.

3. Describe briefly how occupational opportunities in education can be used by ethnic and racial minorities as stepping stones for advancement.

4. Demonstrate a knowledge of organization charts:

   a. Prepare simple box diagrams to describe an organization.
   b. Interpret "reporting relationships" revealed by an organization chart.

Activities: To accomplish these objectives the students may engage in activities such as:

1. High Impact: Developing a display showing an organization chart for their school, including the services offered and persons responsible. This could be a box diagram illustrated with photographs/drawings of services and personnel. Tie-in with Art.

2. Interviewing various school personnel about their responsibilities and duties, and have these reported in oral/written form. Tie-in with Language Arts.

3. Preparing simple box diagrams to show the main components of the D. C. public school system and their relationships.

Activities -- Continued

4. Resource persons: As feasible, interview individuals in the central administration about their responsibilities and duties and report these in oral/written form. Questions should be prepared concerning opportunities for ethnic and racial minorities in these positions.

5. Collecting articles from newspapers and magazines about their school and the D. C. schools, and display these in association with the outputs of Activities 1 and 3.

6. Roundtable discussion: The interdependency of the services offered by the school and how inadequate coordination can affect the students' education.

7. Prepare "pie" graphs of the D. C. annual budget and charts showing the budget over a perioc of years.
Tie-in with Mathematics, Graphic Arts.

8. Quests:

   a. Panel discussion: Discriminatory practices in the allocation of D. C. school system funds and access to positions within the system. Include these aspects:

      1) Documentation of discriminatory practices
      2) Historical aspects of discriminatory practices associated with the role of the school system in enabling members of ethnic and racial minorities to advance from less desirable jobs
      3) Actual and possible means for countering discriminatory practices.

   b. Prepare a written report on the early history of their school. If feasible, have printed and distributed as a tie-in

Activities -- Continued

with Graphic Arts, Language Arts.

c. Conduct a survey on the opinions of students about how the school's services might be improved.
d. Prepare a bulletin board or poster display showing salary ranges for various administrative and instructional positions in the D. C. school system.
e. A "Students Take Charge Day," with emphasis on detailed planning beforehand, including information from interviews (see Activities 1 and 2) and the preparation by the participating students of written or oral plans for their contribution.

Materials:

1. Information about their school:
   a. School Handbooks
2. Information about the D. C. school system:
   a. Organization Chart of D. C. School System (Presidential Building)
3. Format for conducting interview (tie-in with Language Arts)

HOME ECONOMICS

Purpose: To introduce the students to the role of home economics education in programs for providing better nutrition for the public.

Many studies have revealed that the nutritional practices of many Americans fall below minimal standards required for genuinely healthy, wholesome growth, despite our affluent society and income. Teenagers must pay special attention, since they are going through a rapid growth process. Also, many of them have responsibility at home for feeding of young children and all should know about nutrition as it applies to the health of pregnant women.

Objectives: Upon completion of work in this unit the student should be able to:

1. Evaluate his/her personal nutritional practices as compared with minimum required standards.
2. Plan nutritionally balanced meals.
3. Prepare a nutritional meal (lunch).
4. Select a nutritional meal in a public eating facility.
5. Recognize and make use of services of different agencies which set up standards for food consumption; e.g., FDA (Federal Drug Administration), USDA (U.S. Department of Agriculture), DC (Dairy Council of Greater Washington, D.C.), FTC (Federal Trade Commission).

Activities: To accomplish these objectives the students may engage in activities such as:

1. Research one country and participate in a teacher-led presentation of nutritional practices in the U. S. and other countries. Make a list to contrast the U. S. to one other country.
2. Writing reports on information about current

Activities -- Continued

events in nutrition obtained from newspapers and magazines. Make a display of the articles. Tie-in with Language Arts and Art.

3. Read text material on the nutrients found in foods. Choose one menu for a meal and list the nutrients found in those foods.

4. Prepare a chart on the name, function and food sources of each element, as established by the USDA.
Tie-in with Art.

5. Prepare a list of the foods he or she normally eats and classify each into the categories from 4.

6. Discuss the basic four food groups as charted by the Dairy Council of Greater Washington, D. C. Make a chart of the basic four.
Tie-in with Art.

7. Collecting or preparing sample menus and classifying each food in them according to both the four basic food groups and the categories from 4.

8. Planning a meal (lunch) using the basic four standards from 6. Students may, if they wish, then evaluate each other's meals by classifying the foods planned (see 7).

9. Hands-on experience: Preparing and serving a planned luncheon, based on the plans in 8.

10. Field trip: The students will select a meal (lunch) in a public eating facility. Write a list of the foods eaten and compare their choices with the standards of the Basic Four Food Guide.

11. Quests:

    a. Write to different agencies to inquire about their functions in setting up standards pertinent to food.

Activities -- Continued

Tie-in with Language Arts.

b. Panel presentation, based on 11, of the information obtained, with the panelists each responsible for a different agency and to answer questions from the audience.

Materials:

1. Books:
   a. Experiences with Foods, Pollard, Ginn and Company, 1964.
   b. Tomorrow's Homemaker, Lewis, Banks, Banks and Columbia, The Macmillian Company, New York, 1960.
   c. Teen Guide to Homemaking, Barclay and Champion, McGraw-Hill, Inc., 1961.
   d. Lessons in Living, Davis and Peeler, Ginn and Company, Boston, 1970.
   e. "A Daily Food Guide" (chart and leaflet) can be obtained from National Dairy Council.
2. Newspapers and magazines (li rary)
3. Basic Four Food Guide (U.S. Dairy Council)
4. Foods for hands-on experience
5. Filmstrips:
   a. "The World of Wonderful Foods" -- Proctor & Gamble, free
   b. "Planning Meals for Nutrition" -- McGraw-Hill, free
   c. "Essentials of Diet" -- McGraw-Hill

INDUSTRIAL ARTS

Purpose:

To learn about the organization and management of the school shop and the importance of shared teacher-student responsibility in using the shop.

The school shop, as a work facility, shares with other shops the need for organization and management, as well as mutual responsibility of its users. Thus, for example, certain common "rules" can be found necessary to succeed in the school shop, the automotive servicing and repair shop or a gasoline station or car dealership, the shops found in many business and industrial plants.

Learning about the organization and management of the school shop and shared responsibility in using it provides both the essential "ground rules" for the year's work in the school shop and a valuable introduction to shops in general.

In this unit, the preparation of visuals is the specific hands-on experience for involving the students in the shop.

Objectives:

Upon completion of work in this unit the student should be able to:

1. State the organization and management of a shop; specifically these positions and their general responsibilities:

   a. Shop foreman
   b. Safety engineer
   c. Tool room clerk
   d. Maintenance man
   e. Book clerk

2. State the need for shared responsibility in shop operations.

3. Discuss the importance of the shop in business and industry.

4. Prepare visuals -- slides and transparencies.

Activities:

To accomplish these objectives the student may engage in activities such as:

Activities -- Continued

1. Teacher will present basic information on shop organization and maintenance. Have students make charts for display.

2. Open discussion of the "ground rules" essential for successful shop operation. Students will develop list of better and poorer practices.

3. Resource persons: Rap sessions with experts from business and industry, with emphasis upon occupational opportunities related to industrial arts, particularly educational requirements, working conditions (hours, wages, nights, etc.), and possibilities for advancement. Write a job description of one of the visitors.

4. Field trips: McArdle, Post, Star, Hechinger, Home Builders, architectural firms, Metro.

5. Prepare visuals -- slides, transparencies -- to show some of the key points from 1 and 2 above.
   Tie-in with Language Arts if script is developed.

6. Make an organizational chart of positions in a shop (either from one visited or the school shop) with duties of each block stated.

Materials:

1. Shop tools and equipment
2. Transparencies and supplies for making them
3. Slide and film projectors
4. Organization charts (see Objective 1)
5. Textbooks

ART

Purpose:

To explore occupational opportunities in art within public education.

To develop awareness on the part of the student of the many positions in art which have oblique or direct relationship to public education: art teacher, architect, furniture designers, landscape artists, book jacket designers, text illustrators, film strip artists, photographers, etc.; plus the many uses for artistic "know-how" within the system itself: bulletin board displays, posters, murals, brochures, stage settings, etc.

To increase students' awareness of the artistic achievements of many cultures, both primitive and modern, in order that they might better appreciate the high degree of sophistication in most of the primitive cultures and realize the great dependence of modern artists on primitive craftsman for inspiration.

To increase the awareness of Black students of their cultural heritage, which is rich in creativity and spiritual sohpistication.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge of occupational opportunities in art within public education by:
   a. Listing at least five such occupations
   b. Describing at least one such occupation--usual position title, responsibilities and duties, place in the occupational hierarchy, occupational mobility, income range.
2. Create pictorial depictions of historical background and chronology; specifically, education (e.g., free, public education in the U.S.; their school history). Tie-in with Social Studies.
3. Design and execute layouts, bulletin boards, posters and murals.

Objectives -- Continued

4. Handle a camera competently and creatively.

5. Create drawings, caricatures and cartoons with education as the subject.

6. Describe at least five characteristics of an ideal school building.

Activities: To accomplish these objectives the student may engage in activities such as:

1. High Impact: Design and execute a brochure about the mini-school: the purpose, organization and operation. Use student created photographs, drawings, cartoons, caricatures, etc.
   Tie-in with Language Arts, Social Studies.

2. As appropriate to the individual's skills and interests, have the students:

   a. Design a community bulletin board or mural which deals with education.
   b. Draw a cartoon or caricature dealing with education.
   c. Design and execute a bulletin board or poster display of cartoons, caricatures, and comic strips dealing with education and judged especially pertinent to their own experiences. This could also be a scrapbook.
   d. As in c. above, but using photographs -- preferably student created -- of educational content.
   e. As in c. and d. above, but focusing on specific subject areas such as language arts, mathematics, science, etc.
   f. As in c. and d. above, but focusing on some historical background and chronology aspects of educational nature.

3. Prepare an illustrated oral or written report on art in relation to cultural history and heritage, such as comparisons of art among different cultures or some particular theme in Black art (African, Afro-American).

Activities -- Continued

a. View film strips.
b. Visit museums.
c. Study the literature.

4. Quests:

a. High Impact: Design an "ideal" school facility.
Tie-in with Industrial Arts -- build a simple model; Language Arts -- prepare a formal oral or written presentation explaining the assumptions underlying the design.

b. High Impact: As an extension of Activity 1 -- mini-school brochure -- develop a mini-school yearbook, either for eventual reproduction and distribution or as a scrapbook or other form of display emphasizing photographs by students.
Tie-ins with Industrial Arts, Language Arts, Science (later work on light and principles of photography).

5. Resource persons: Interviews with persons who have an occupation within public education that deals with art about their duties and responsibilities. Have student present findings to class.

Materials:

1. Cameras, film
2. Drawing paper
3. Crayons
4. Brushes
5. Assorted colors of tempera
6. Rulers, pencils
7. Charcoal

Career Development Curriculum Guide: GRade 8
Public Service Occupations, Education (Apprentices and Skill Building)

BUSINESS

Purpose: To develop skill competencies at the typewriter so that students will be equipped to carry out initiating and facilitating activities within forthcoming modules.

Objectives: Upon completion of work in this unit the student should be able to:

1. Recognize the parts of the typewriter and master the keyboard.
2. Type with a minimum speed of 25 words per minute.
3. Discuss the typewriter as a tool of communication.
4. Define and list principles of work simplication.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Intensive skill-building activities at the typewriter -- supplementary and textbook drills to achieve a minimum speed of 25 words per minute.
2. Typing from a rough draft materials from other subject areas in addition to "Thought Starters" and other supplementary materials supplied by the teacher.
3. Apply "Working smarter, not harder," by collecting, organizing and following through on given job assignments by following principles of work simplification.
4. Typing a list of parts of typewriter and function of each.

Materials:

1. Textbooks
2. Typewriters

Materials -- Continued

3. Stop watch
4. Erasers
5. Paper
6. Manila folders
7. Ditto masters
8. "Thought Starters"
9. Keyboard chart

PHYSICAL EDUCATION

Purpose:

To explore occupational opportunities in physical education within public education.

To develop awareness on the part of the students of the ways to maintain physical efficiency; to develop useful physical skills; to act in socially useful ways; and to enjoy wholesome physical re-recreation.

To increase students' awareness of the efficient body functions acquired through physical education that are essential in both work and play.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Discuss at least one occupational opportunity in physical education within public education.
2. Describe how one might strive to develop strength and endurance essential to meeting successfully the challenges of our highly organized and stimulated way of life.
3. Demonstrate means to develop flexibility, agility and coordination which help one to live healthful, safe and efficient lives.
4. List some social and emotional qualities which contribute to mental health.
5. Discuss the importance of getting along together, to work toward a common goal, to appreciate their own rights and the rights of others, to lead skillfully and follow intelligently.
6. Explain how body awareness can aid in maintaining good health.

Activities:

To accomplish these objectives the student may engage in activities such as:

List and describe those occupations in physical education within public education.

Activities -- Continued

2. Research and write an essay on one of the occupations, including the education requirements, responsibilities and duties, where to go for employment, and income.
   Tie-in with Language Arts.

3. Engage in various sports and physical education activities that will meet their physical needs and can be used as a carryover activity for later recreation. List some of the needs each activity participated in might fill.

4. Participate in the following with emphasis on careers involved in each:

   a. Individual and dual sports
   b. Team sports, group games and relays
   c. A program of gymnastics

5. Practice specific skills in small and large groups giving critical advice to one another on how to improve these skills.

6. Construct a bulletin board on professional people in sports and write a brief statement of each.
   Tie-in with Art.

7. Attend a football, basketball and soccer game. Write a description of the exercises done by the team members before the game.

8. View a film on careers in physical education and write a summary.

9. Quest:

   a. Construct a scrapbook on the ways to maintain good health.
   b. Organize a swimming, skating, bowling and golf club, with experience in each at the appropriate places.

Materials:

1. Film projector

Materials -- Continued

2. Baseball
3. Basketball
4. Softball
5. Football
6. Nets
7. Records
8. Record player
9. Golf club and balls
10. Soccer ball

CLUSTER 1 - Grade 8

PUBLIC SERVICE OCCUPATIONS

Unit/Topic 2 - Public Utilities

Topic: Public Utilities

Purpose: To explore occupational opportunities in public utilities.

1. water system
2. electricity
3. gas
4. steam
5. communications
6. sanitation
7. nuclear power generation

To broaden the concept of public utilities.

1. Investigate the function of each
2. See regulatory agencies as a protection to the citizen

Main Ideas:

1. Public Utilities are a major source of employment.
2. To investigate functions of each utility and occupations peculiar to each.
3. Many practical and personal needs are satisfied.
4. Opportunities are growing in public utilities occupations.

Quests:

1. Make a collage of pictures pertinent to public utilities.
2. Explore uses of atomic energy for consumer needs.

Career Opportunities:

1. Unskilled

   Laborer, construction

2. Semi-skilled

   Boiler and furnace operator, general clerk, filtration plant mechanic, hammerman, power saw operator, stationary fireman (boiler), switchboard operator, telephone central/office installer, telephone central/office operator, telephone central/ office repairman, telephone equipment man, telephone frameman, telephone groundman, telephone lineman, telephone station installer-repairman, telephone testboardman, truck driver.

3. Skilled

   Air conditioning mechanic, appliance serviceman, electric lineman,

Skilled -- Continued

electric substation operator, electrician, engineering technician, gas appliance serviceman, pipe fitter, plumber, power house engineer, radio and television announcer

Professional

Bacteriologist, water utility, biochemist, biologist, chemical engineer, chemist, civil engineer, electrical engineer, general attorney, general contractor, highway construction engineer, highway design engineer, mechanical engineer, personnel manager, purchasing agent, service manager, telephone engineer, traffic manager, water filtration supt.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities

LANGUAGE ARTS

Purpose:

To learn of the wide range of occupational opportunities in six kinds of utilities.

To strengthen certain skills related to composition.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Verbally outline, classify, or categorize some facet of a film after viewing.

2. Describe orally occupational opportunities in public utilities.

3. Distinguish, particularly in reference to 2. above, but also generally, between occupations that require "doing skills" and those that require "language skills" (talking/writing).

4. Contrast with the results of the vocational aptitude inventory test a measure of self-appraisal in terms of being "word-oriented" or "action-oriented".

Activities:

To accomplish these objectives the student may engage in activities such as:

1. Take the vocational aptitude inventory test. Tie-In with Counseling. Write a critique of the results to contrast them with a self- appraisal of skills.

2. Design and execute wall charts classifying various utility workers, showing what they do.

   a. Have a part of the classification deal with the distinction between "doing or action skills" and "word or language skills".
   b. If a. is done, have a teacher-led discussion of the distinction.

   Tie-In with Art:

3. View films on utility workers

Activities -- Continued

a. As appropriate to individual needs, have students prepare oral or written film commentary, perhaps with emphasis on filming techniques for activity 4.

Group Quest/Field Trips:

4. Plan and produce a film (8mm) of a visit to a site where plumbing and electrical installations are being done.

5. Have an individual conference with the counselor, outlining job-related things that you think you would like to do. Classify each activity as "action-oriented" or "word-oriented". Write a conclusion from this as to whether you are more of one than the other or a mix.

Materials:

1. Individual copies of Vocational Aptitude Inventory Test; administration manual or directions. Two alternate forms of the test would be preferable to determine before and after changes.
2. Films:
   a. "Electric Utility Workers" (Twining #1190)
   b. "Gas Workers" (Twining #1177)
   c. "Plumbers" (Twining #1125)
   d. "Communication Workers"--telephone (Twining #1118)
   e. "Electric Workers" (Twining #1119)
   f. "Aptitudes and Occupations" (Twining #1476)
   g. "Priceless Water" (Prince George, 12 min. color)

MATHEMATICS

Purpose:

To explore ways in which mathematics can enter into the operation of Public Utilities, such as the use of Ohm's law and the calculation of kilowatt hours.

Mathematics is such a vital element in the normal functioning and advancement of society that the student should be introduced to the role that mathematics plays and can play.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Identify and use Ohm's law:

$$R = \frac{E}{I} \quad \text{or} \quad V = I \times R$$

2. Multiply and divide whole numbers, including 2 or 3 digit multipliers in calculating the current using Ohm's law.

3. Identify and use the properties of operations with whole numbers in calculating the kilowatt hours.

4. Solve problems involving current, identifying and using the required properties of operations with whole numbers.

5. Calculate cost of electricity using kilowatt hours.

Activities:

To accomplish these objectives the student may engage in activities such as:

1. Calculate current using Ohm's law (tie-in with Science) using 2 and 3 digit multipliers.

2. Calculate kilowatts from given values for the current and voltage of a circuit identifying at each step the properties of operations with whole numbers.

Activities -- Continued

3. Calculate the number of kilowatts associated with his TV, record player, and radio.

4. Keep a record of the amount of time his TV, record player, and radio are played for an entire week. Have the student calculate the cost of electricity for using each appliance for the entire week. Calculate the total cost of electricity for using all three of the appliances.

5. Make replicas of electric meters and gas meters in their shop and/or science activities. The meter dials should be able to move at various rates of speed. The mathematics class will be responsible for calculating the cost of using the gas and electricity on the basis of two meter readings taken over an interval of time set by the teacher.

Materials:

1. Compass or ruler.
2. Information on the present cost of electricity and gas.

SCIENCE

Purpose: To learn how one form of energy may be transformed into another more useful form for public benefit.

Public utilities make energy available in useful forms for the consumer--individual homes, apartments, buildings used for business, industrial, governmental, and other purposes. Our understanding of this process can make us better informed citizens capable of voting intelligently on issues of the regulation of utilities.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate, via responses to questions and problems, knowledge and understanding that a wire carrying a current is surrounded by a magnetic field; specifically:

   a. Moving a magnetic field past a conductor or vice versa produces a flow of electrons, indicated by the movement of the needle of a galvanometer.
   b. The generation of electricity can involve different transformations, for example:
      1) mechanical into electrical energy, as in a bicycle lamp lighted by a simple generator; auto generator.
      2) chemical into electrical energy, as in a battery-operated electrical system--flashlight, auto (Note: it may be appropriate here to discuss the relationships among chemical, mechanical, and electrical energy associated with the automobile battery, generator, and electrical system. Tie-In with Industrial Arts).
      3) Power plants:
         a) Mechanical to electrical in hydro-electrical plants.
         b) Chemical to heat to mechanical to electrical in coal and nuclear fueled plants.

Objectives -- Continued

2. Describe orally some advantages and disadvantages of alternate means for generating electricity for the growing megalopolis (coal, nuclear, other).

To accomplish these objectives the student may engage in activities such as:

1. Teacher-led review of facts on magnetism and electricity learned to date, and the basic laws of each. Make a chart that corresponds the facts with their basic laws.

2. Hands-on experience. Teacher demonstrates after which the students experiment with a large demonstration galvanometer, coil of wire, and magnet to show how a moving magnet causes a flow of current electricity in the wire. Also move the coil of wire while the magnet is stationary. Prepare a lab report on one of these experiments.

   a. Teacher-led discussion of mechanical energy to electrical energy transformations--bicycle and motorcycle lamps, auto generator, hydroelectric plant generators.

3. Hands-on experience. Connecting a coil of wire wound around a nail to a dry cell--magnetic effects, indicated by the deflection of a compass needle. Write a description of the effects of this experiment.

4. Teacher-led discussion. Develop the law that magnetic lines of force cutting through a conductor produce electricity.

5. Hands-on experience. Use a hand-cranked dynamo to generate electricity--light a bulb, shock the class.

6. Oral/written reports: Power plant generators and their sources of energy; specifically: the energy transformation "chain" associated with hydroelectric, coal fueled, and nuclear plants.

Activities -- Continued

a. Have the student prepare the report on a specific power plant and include a simple box diagram showing the energy transformation "chain". For example: Hoover Dam, the Potomac Electric Power Plant on Benning Road, the proposed Chesapeake Bay nuclear generator plant.
Tie-in with Industrial/Graphic Arts, Language Arts.

b. Other smaller generators, specifically: automobile generator and alternator; bicycle light generator; auxiliary gasoline generator (army field operations).

7. Quests:

a. Disassemble an automobile generator and label and demonstrate its parts.

b. Resource person: Have the student interview an automotive mechanic about the most frequent service and repair aspects of auto generators and prepare an oral or written report, including a labelled drawing or picture of a generator.
Tie-in with Language Arts, Industrial/Graphic Arts.

c. Have students write to utility companies for information on job opportunities and prepare displays on specific ones.
Tie-in with Language Arts, Industrial/Graphic Arts.

d. Teacher-led discussion of air, water and thermal pollution caused by large power generating stations.
   1) Research and prepare oral/written report(s) on the main sources of pollution in the Washington area associated with public utilities.
   Tie-in with Social Studies, Language Arts.
   2) Prepare display of pollution caused by large power generating stations.

e. Research report on electrical brownouts/blackouts.

Activities -- Continued

8. Resource person: Have a counselor, utility company executive (personnel director), or other resource person discuss with the students job opportunities in the manufacture, installation, maintenance and repair of electrical equipment.

Materials:

1. Demonstration galvanometer, wire, magnets, magnetic compass
2. Hand-cranked dynamo
3. Automobile generator
4. Literature on electrical power generating plants:
   a. Nuclear -- contact U.S. Atomic Energy Commission
   b. Hydroelectric -- consult the Conowingo Dam, T.V.A., Hoover Dam
   c. Consumer aspects -- contact Consumer's Union
5. Pamphlets sent by the U.S. Atomic Energy Commission in response to telephoned requests to their Public Information Officer (telephone: 973-1000):
   a. "Nuclear Power and the Environment", USAEC
   b. "Atomic Power Safety", USAEC
   c. "Nuclear Power Plants", USAEC
   d. "Atomic Energy In Use", USAEC
   e. "Nuclear Reactors", J.F. Hogerton
6. Panel discussion: "Thermal Effects -- A Potential Problem in perspective", USAEC
7. Pamphlet sent by T.V.A. in response to telephoned request (telephone: 343-4537): "T. V.A. Power 1970" -- Page 10 has excellent simplified diagrams of energy changes in electric power generating stations.
8. Pamphlets sent by the Potomac Electric Power Company (PEPCO) in response to telephoned request:
   a. "Chalk Point, PEPCO's Newest Generating Station"
   b. "Potomac Electric Power Company: Annual Report 1970"
   c. "75 Years Serving the Nation's Capitol"

Materials -- Continued

9. Book references in Browne Junior High School library:
   a. Boy and a Battery, Raymond F. Yates; Harper, 1959. (537Y)
   b. Fundamentals of Electricity, Charles E. Dull; Holt, 1943. (536)
   c. First Book of Electricity, Samuel Epstein; F. Watts, 1953. (537E)
   d. First Book of Electricity, Samuel Epstein; F. Watts, 1966. Revised edition. (537.2E)
   e. Essentials of Applied Electricity, Elmer W. Jones; Bruce Publishing Company, 1935. (621.3J)
   f. Fun with Electrons, Raymond F. Yates; Appleton-Century, 1945. (537Y)
   g. Experiments with Electricity, Nelson F. Beeler; Crowell, 1949. (537.072 B)
   h. Wonderful World of Energy, Lancelot T. Hogben; Garden City Books, 1957. (621H)
   i. Magnet, E. Valens; World, 1964. (538V)
   j. Junior Science Book of Magnets, Rocco V. Feravolo; Garrard, 1960. (538F)
   k. Boys Book of Magnetism, Raymond F. Yates; Harper, 1941. (538Y)

10. Films from D.C. Schools Audio-Visual Department:
   a. "Thomas Edison" (S-A), #1650, 26 min. -- Good historically
   b. "Electricity and How It Is Made" (P-I), #1493, 16 min.
   c. "Electronmagnets" (I), #156, 10 min.
   d. "How to Produce Electric Currents With Magnets" (I-S), #1514, 11 min. -- Good on interrelationship
   e. "Magnetic, Electric and Gravitational Fields" (I-S), #1521, 11 min.

11. Filmstrips:
   a. "Electric Magnets" (I), #203, 43 frames
   b. "Electromagnetism" (s), #208, 55 frames
   c. "Magnetism and Electricity" (P-I), #1523, 30 frames, color -- Applications to daily life

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities

SOCIAL STUDIES--Electricity Lights the Path to Modern Living

Purpose: To explore social aspects of public utilities; the why of them and problems in ensuring their serving the public need for which they are intended in an economical, effective way.

Throughout history, civilized man has endeavored constantly to improve himself and his way of life. This continuing quest has resulted in the production of many time- and labor-saving devices which in turn have contributed to increased opportunities for the enjoyment of leisurely pursuits.

Where certain services, such as electrical power to operate such devices, have proved essential and beneficial to the welfare of large numbers of people, it has usually proved both desirable and feasible for government -- local, state and federal -- to assume a major interest in their operation. Thus, while the free enterprise system thrives best when there is substantial open market competition, a notable exception is the area of public utilities, in which governmental intervention is generally accepted, such as the establishment of publicly regulated monopolies.

The social studies section of this public utilities unit will focus on electricity. Our dependence on this source of energy is apparent. Recent blackouts and brownouts have served to remind us that such resources can indeed become scarce as consumer usage increases. At the same time, providing additional electric power to meet the growing consumer demand risks greater environmental pollution; yet governmental limitations upon consumer demand are contrary to the capitalist economy.

In the not too distant future electric power will be replaced by nuclear, or some other form of energy, which will represent another step forward by mankind. For the time being, however, electricity remains one of our most valued resources, providing better living conditions for the consumer and innumerable job opportunities for those who engineer and operate its services.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities, SOCIAL STUDIES--
Electricity Lights the Path to Modern Living

Objectives: Upon completion of work in this unit the student should be able to:

1. Describe how their lives are influenced by public utilities, especially electricity.

   a. List the main public utilities on which they depend, at home and in school.
   b. List ways in which electric power failures can affect them, at home and at school.

2. Cite evidence that public utilities are essential for the unity, progress and general welfare of our nation.

3. Discuss aspects of the role of consumer demand such as factors influencing it (population growth, new devices for consumer use, etc.) and problems in meeting it (pollution by-products, etc.)

4. Compare and contrast private and public ownership of public utilities and to explain why public ownership and government regulated monopolies are the usual choice.

To accomplish these objectives the student may engage in activities such as:

1. Field trip: Visit PEPCO Electrical Playhouse to see the story of electricity. Write a chonological summary of the history of electricity.

2. Make a scrapbook on the uses of electricity.

   a. Categorize the entries (e.g., necessity vs. luxury uses).
   Tie-in with Language Arts.

3. Studying the difference between public and private ownership; publicly regulated monopolies:

   a. Debate: Public vs. private ownership of public utilities. Tie-in with unit 6, the Postal Service.

Activities -- Continued

b. Open discussion: What would happen if there were two or more telephone companies in Washington, D. C.?
c. Quest:
   1) Have a group prepare an illustrated oral presentation on how utility rates are regulated and the role of the consumer. Tie-in with Mathematics, Language Arts, Industrial/Graphic Arts.
   2) Have different groups prepare displays (bulletin board, poster, scrapbooks) showing the different forms of utility ownership -- private, public, publicly regulated monopolies. Tie-in with Art.

5. Open discussion: Electric power, consumer demand and national priorities. How can we balance among meeting consumer demands, minimizing pollution, equitable national priorities, a free enterprise economy, and reasonable governmental regulation.

6. Role play: Power failures -- blackouts/brownouts -- open discussion: At noon on a hot late September day there is a massive electric power failure in Washington, D. C. and the surrounding area. It lasts for a week. Have the students discuss and prepare with them a list of the results after: a) 5:00-6:00 P.M. (quitting time); b) midnight the first day; c) noon 48 hours later; and d) the week has passed. Note: This may best be done as a continuing activity (perhaps even High Impact) built around individual/group Quests to research various aspects of the problem, such as experiences from the past (New York City), emergency power supplies, chain-like consequences (electricity role in water service), and what the rest of the nation might do to help out during the crisis.

7. Field trip: Tour a Potomac Electric Power Company plant, with pre-written questions

Activities -- Continued

designed to discover occupational opportunities. Write a description of one occupation discussed.

a. Resource person: Have a power company executive discuss occupational opportunities.
Tie-in with Science, Activity 8.

8. Field trip: Visit the Washington Gas-Light Company.

a. Resource person: Have an executive from the gas-light company discuss occupational opportunities. Write a job description of one opportunity.

9. Quests:

a. Prepare a display depicting the history of electricity and its use. Tie-in with Graphic Arts.
b. Prepare a display of graphs depicting consumption of electric power and the concomitant growth of its sources in the Washington area as well as nationwide.
Tie-in with Mathematics.
c. Write a diary describing "A Day Without Electricity."
Tie-in with Language Arts.

Materials:

1. Books and magazines:
   a. Fortune Magazine, "Utilities in a Bind," November 1969.
   b. Issues Today, "The Night the Lights Went Out," January 22, 1971.
   c. American Government, Mary Magruder Smith; Allyn and Bacon, Inc., Boston, 1961.
   d. Fortune Magazine, "Why the United States Is in an Energy Crisis," November 1970.
   e. Today's Problems, C. Pullen and James Reud; Allyn and Bacon, Inc., Boston, 1962.
2. Booklets obtained from PEPCO.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities

BUSINESS

Purpose: To broaden students' concepts of communications and occupational opportunities within the communications industry.

Objectives: Upon completion of work in this unit the student should be able to:

1. Describe occupational opportunities in the field of communications, particularly the telephone company.

2. List three communication tools and demonstrate a correct use for each as a communication tool.

Activities: To accomplish these objectives the students may engage in activities such as:

1. High Impact. Oral communication game using the typewriter.

2. Arrange an interview to find out more about the use of the telestar. Emphasis on formal written initial contact plus pre-planned telephonic followup.

3. Simulate the proper way to use the telephone by using the teletrainer.

4. Use the Morse Code Machine to get actual experience in sending telegrams.

5. Quest:

   a. Prepare an illustrated oral/written report on the teleprinter (teletypewriter).
   b. Quest. Prepare an illustrated oral/written report on the school's telephone system and internal communications.

6. View film from C & P Telephone Company and write a summary.

7. Field trip: Visit the telephone/telegraph companies.

Activities -- Continued

8. Skill building practice at the typewriter.

9. Make telephone inquiries for data needed in forthcoming topics.

Materials:

1. Teletrainer
2. Film: "Tomorrow is Now" (C & P Telephone Company)
3. Morse Code Machine
4. Telephone Directories
5. Typewriters, typing materials

HOME ECONOMICS--Home Safety in the Use of Public Utilities

Purpose: To develop awareness of effective use of public utilities and home safety practices.

Many accidents occur each year in homes because of inadequate awareness on the part of consumers and homemakers of important safety practices in the use of public utilities.

Objectives: Upon completion of work in this unit the student should be able to:

1. Identify areas in the home where accidents are most likely to occur and to relate these to the use of public utilities.
   a. List or indicate in pictures, areas in the home where accidents are most likely to occur.
   b. List for each such area one or more kinds of accidents and the causes.
   c. State for the kinds of accidents from b. above, one or more safety practices.
   d. Indicate those accidents associated with the use of specific public utilities: electricity, gas, water.
2. Demonstrate effective application of safety rules in cooking and dishwashing.
3. Demonstrate effective application of safety rules in using and repairing electrical appliances.
   Tie-in with Industrial Arts.
4. Identify adequately and properly labeled electrical appliances.
   Tie-in with Mathematics.
5. Describe occupational opportunities associated with the promotion of safety in relation to public utilities.
   a. List specific jobs and the companies or agencies where they are available.

Objectives -- Continued

b. Describe at least one such job: responsibilities, duties, entry requirements, advancement opportunity, salary range, etc.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Quests:

   a. Research the problem of areas in the home where accidents are most likely to occur, including the kinds of accidents and their causes.
      Tie-in with Social Studies.
   b. Cite these areas in a diagram or report.
   c. Prepare safety posters.
      Tie-in with Social Studies.

2. Compile a list of accidents which have occurred in their homes. Include for each accident the location and assumed cause, as well as identification of the public utility, where relevant.

3. Based on Activities 1 and 2 above, have the student compile lists of accidents and causes related to:

   a. Electricity:
      1) Shock
      2) Blown Fuses
      3) Overloaded outlets
   b. Gas:
      1) Burns
      2) Inhalation
      3) Storage of flammable/explodable solvants and liquids near gas or hot water heaters
      4) Fire, explosions
   c. Water:
      1) Burns and scalding
      2) Drowning
      3) Falling (on slippery areas)
      4) Rusting, damage to wooden furniture.

4. Resource persons (with films, as feasible):

Activities -- Continued

a. Electricity: Resource person from PEPCO to talk on the effective, economical and safe use of electrical appliances. Write a summary of the visit.
b. Gas: Resource person from Washington Gas-Light Company to demonstrate safety practices with gas stove. Have students discuss the differences in safety practices for gas vs. electricity.
c. Water: Resource person from YMCA, YWCA, or an equivalent agency, to demonstrate and discuss safety practices in swimming. Prepare a set of specific questions to be answered during the discussion.

5. Demonstrate safety measures at the stove, handling water for dishwashing, and using electrical appliances.

   a. Quest: Have students compile a list of such measures and displays (posters) depicting them.
   Tie-in with Art.

6. Examine labels on electrical appliances and state the information contained. As a Tie-in with Mathematics, ask them to determine the current drain for each (kilowatts).

7. Group Quest: Prepare a written report or display on companies that promote safety and job opportunities within them.
   Tie-ins with Language Arts, Graphic Arts.

   a. Prepare a brief statement describing one such position of interest.
   Tie-in with Language Arts.
   b. Prepare an oral or written report on the meaning of Underwriters Laboratory Seal.
   Tie-in with Language Arts.

Materials:

1. Text and reference materials on home accidents:

Materials -- Continued

a. Health For You, Crisp; J. B. Lippencott, New York.
b. Exploring Home and Family Living, H. Fleck, Louise Fernandez and Elizabeth Minves; Prentice-Hall, Englewood Cliffs, New Jersey, 1965. (Chapter 19: Home Safety).
c. Booklets:
   1) "First Aid" -- The American National Red Cross, Washington, D. C.
   2) "Safe at Home and in the Community" -- Health Education Service of John Hancock Mutual Life Insurance Company, Boston.
d. Chart: "Make Safety in the Home a Habit" -- Johnson & Johnson.

2. Electrical appliances and cords.

3. Standard home economics laboratory equipment: stoves, etc.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities

INDUSTRIAL ARTS

Purpose:

To explore public utilities as sources of energy and the transformation and distribution of energy to homes, business and industry.

To explore occupational opportunities within public utilities, with emphasis on those for which industrial arts training is relevant.

To learn specific knowledge and skills associated with public utilities.

Objectives:

Upon completion of work in this unit the student should be able to:

1. In the area of public utilities:
   a. List the main public utilities in Washington, D. C.
   b. List occupations in public utilities which involve the use of industrial arts skills.
   c. Describe one such occupational opportunity.
2. About energy, energy transformation and energy distribution:
   a. Describe how one of the following is provided to homes in Washington, D. C.: electricity, gas, water. Include the original source (and energy transformation, if any -- Tie-in with Science section), means for distribution, nature of the connection to the home, and means for recording use of.
   b. Describe how a central heating plant functions, such as in the school or home, preferably using a diagram.
3. Demonstrate skill in reading electric, gas and water meters.
4. Describe a simple intercom system with telephone hookup, preferably using a diagram.

Activities:

To accomplish these objectives the student may engage in activities such as:

Activities -- Continued

1. Select an occupation or occupational area associated with public utilities and prepare an oral or written report describing it: position, responsibilities and duties, entry requirements, salary range, etc. Emphasis should be placed on role of industrial arts skills.
   Tie-in with Language Arts.

2. Prepare an oral or written report describing how electricity, gas, or water is provided to his or her home. See Objective 2.a for details. Tie-in with Science section as appropriate on energy transformation. Encourage the use of a diagram and Tie-in with Graphic Arts. Also Tie-in with Language Arts on report organization.

3. Prepare an oral or written report describing how a central heating plant functions. Require a diagram, appropriately labeled. Same Tie-ins as Activity 2 above.

4. Hands-on experience: Install an electric meter read it, and make calculations.
   Tie-in with Mathematics.

   a. Read other meters in the school and calculate changes over an interval of time.

5. Hands-on experience: Build an intercom system with a telephone hookup.

   a. Draw a diagram of the system, properly labeled and, as feasible. Explain the diagrams.

6. Field trips:

   a. Calvert Cliffs Atomic Power Plant, Calvert Co., Maryland
   b. Potomac Electric Power Company, 3300 Block of Benning Road, N. E.
   c. Washington Gas-Light Company
   d. C & P Telephone Company
   e. U. S. Army Corps of Engineers
   f. Washington Sanitary Commission

Activities -- Continued

7. Quests:

   a. Compile a scrapbook/notebook of technical terms associated with public/utilities. Tie-in with Language Arts.
   b. Prepare a display of a simple diagram (circuitry of a transistor portable radio, flow diagram for gas transmission system) and accompanying explanation. Tie-in with Language Arts, Graphic A

Materials:

1. Meters: elecrtic, gas, water
2. Telephone
3. Intercom kit
4. Templates for drawing block diagrams
5. Films:
   a. "Electricity and How It Is Made," #1493 (Twining Schools)
   b. "The Flow of Electricity," #195
   c. "Atomic Power Production," #1921
   d. "History of Natural Gas," #2080
   e. "Story of Heat," #1248

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Public Utilities (Sanitation)

INDUSTRIAL ARTS

Purpose: To develop knowledge and understanding of sanitation and its place in home, school and industry.

Objectives: Upon completion of work in this unit the student should be able to:

1. State the consequences and means for control and elimination of a given unsanitary condition.

2. Describe an occupational opportunity within the area of sanitation.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Resource persons:

   a. Speaker on rules and regulations regarding sanitary kitchen conditions in public restaurants and how these are enforced. Make a checklist of important points.
   b. Speaker on the municipal rat control program. Write a description of one means of controlling rats.

2. Open discussion: Nature and locations of various unsanitary conditions at home, in school and in the community; means for their control and elimination.

3. Field trips:

   a. Inspection tour of school cafeteria, using a checklist developed on the basis of 1.a.
   b. Visit one or more city agencies to observe the processes and safeguards for guaranteeing the purity of food and milk. See if all points on checklist are considered by the agency.

4. Hands-on experience: Design and build traps to catch rodents for research, etc.

5. Draw a block diagram of a home garbage disposal unit, including explanatory labels.

Activities -- Continued

6. Quest:

   a. Prepare a display showing the organization and operation of the municipal garbage and trash collection and disposal system.
      Tie-in with Social Studies, Art.
   b. Prepare and present a dramatic skit for the mini-school, such as simulated radio/TV broadcasts, of the events resulting over a period of time from a complete breakdown of the city's sanitation services (e.g., garbage/trash collectors strike for a month).
      Tie-in with Language Arts, Social Studies.

Materials:

1. Garbage disposal unit and/or illustrated brochures
2. Sanitation visual aids
3. Materials for constructing rodent traps

Career Development Curriculum Guide: Grade 8
CLUSTER/MODULE: PUBLIC SERVICE OCCUPATIONS

Topic: Community Social and Health Services

Purpose:

1. To explore and broaden the knowledge of existing services.
2. To explore social services as a part of the mainstream in large cities.

Main Ideas:

1. There are many occupational opportunities in Washington, D. C.
2. The social worker is a promoter of human dignity.
3. Some specific services are provided at nominal cost.
4. Relationship between community social and health services.

Quests:

1. Volunteer services to local social and health agencies.
2. Interview social and health service workers.

Career Opportunities:

1. Semi-Skilled

   Laboratory Aide, Nurse's Aide, Pharmacy Aide, Physical Medicine Aide

2. Skilled

   Dental Assistant, Dental Laboratory Technician, Medical Records Librarian, Medical Secretary

3. Professional

   Bacteriologist (Water Utility), Biochemist, Biologist, Chemist,Child Care Supervisor, Hospital Administrator, Occupational Therapist, Physician, Psychiatric Social Worker, Psychologist, Recreation Center Director, Social Worker, Superintendent of Recreation.

LANGUAGE ARTS

Purpose:

To explore community social and health services available in the Washington, D. C. area.

To develop general knowledge of the kinds of occupational opportunities associated with these. Note: There is a full module on Health Occupations in Grade 8, immediately following this one on Public Service Occupations, and covering details of such occupational opportunities.

To develop communication skills needed in community social and health services.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge of the wide range of work in the social services by:
   a. Listing various social and health services available in the local community and in Washington, D.C. generally.
   b. Listing specific occupations within these services.
   c. Describing at least one such occupation: position, responsibilities and duties, entry requirements, advancement, salary range.
2. Describe "psychic" gratifications often obtained from working in such services.
   a. Describe both the "idealistic" concerns and resulting satisfactions associated with a given type of service or position within it.
3. Explain the importance of interpersonal communication in social and health service work.
   a. Describe the often difficult emotional situations of those seeking help and how social/health service workers try to cope with these through effective communication.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Quests:

   a. Research and make a list of the agencies in the local community, Washington, D. C., and surrounding countries where teenagers can volunteer services. Include the agency name, address, telephone number, type of social/health services offerings and kinds of volunteer help sought.
   Tie-ins with Social Studies (research skills), Graphic/Industrial Arts (printing, distribution if feasible).

   b. Prepare an illustrated report on the work of teenage volunteers in a social/health agency.
   Tie-in with Art.

2. Design and execute wall charts explaining community social/health services and/or specific occupational opportunities within them; e.g., "What Is Social Worker?"; "What Do Social Workers Do?"
   Tie-in with Art.

3. Write an essay or short story on "the rewards of helping people."

4. Write an essay or short story on "the importance of effective communication in social and health services." Discuss with other students the ideas in the essays.

5. View film strips and films on social and health services; write commentaries on one or more of these, emphasizing the themes from Activities 3 and 4 above.

6. Prepare a notebook/scrapbook on various types of social work and write legends for each entry.

Materials:

1. Film strips (Note: These apply also to the next module and their use should be coordinated with plans for that module):

Materials -- Continued

a. "So You Want to Be a Nurse"
b. "Health Careers"
c. "Your Future in Nursing"

2. Films:
   a. "Health, You and Your Helpers"
   b. "Tell Me Where to Turn" -- about social agencies
3. Poster boards for designing visual aids pertinent to social and health services

Career Development Curriculum Guide: Grade
Public Service Operations, Community Social and Health Services

MATHEMATICS

Purpose: To appreciate that mathematics plays an ever-increasing role in the social services necessary for human development.

To continue the development of basic mathematics skills.

Objectives: Upon completion of the work in this unit, the student should be able to:

1. Perform the four fundamental operations with decimal fractions, using, as applicable, data on the costs of social and health services.

2. To arrange a given set of fractions in increasing and decreasing order.

3. Convert common fractions to decimal fractions.

4. Solve verbal problems involving common and decimal fractions.

Activities: To accomplish these objectives, the students may engage in activities such as:

1. Make a survey of the costs of various social and health services for the past five years and use the data to:

   a. Calculate the average cost for the same period.
   b. Make graphs plotting the cost per year.
   c. Make a prediction for the next year from b. and compare this prediction with that of agencies such as health insurance organizations.

2. Make a survey by months of the number of TB, VD, cancer, and muscular dystrophy cases in the D.C. General Hospital for a three month period and use the data to:

   a. Calculate the monthly average number of cases for each disease.
   b. Graph the results of the survey.

3. Make a survey of the Minischool of the number of students who are covered by school health insurance and use the data to:

Activities -- Continued

a. Calculate the total amount of money received by the health insurance agencies/companies for this coverage.
b. Calculate the percentage of Minischool students covered by health insurance.
c. Use the percent from b. to calculate or estimate the total amount of money paid for health insurance by the families of Minischool students.

4. Make a survey to determine the number of visits made by the average or typical social worker per day during a thirty day period and use the data to:

   a. Calculate the average number of visits per day.

5. Define these terms. How does mathematics apply to their usage in an insurance company.

   premium — prorate
   indemnity — policy
   grace period

Materials:

1. chart paper.
2. access to records on school health insurancy costs
3. access to information on school social workers

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Community Social and Health Services

SCIENCE

Purpose: To introduce the students to parts of the electromagnetic spectrum, other than light energy, which are used in health services.

X-radiation (X-rays), ultra violet radiation, and infra-red radiations are used extensively in diagnosis and therapy in hospitals. Their use requires understanding and skill.

Note: The coverage within this unit should be coordinated closely with planning for the coverage in the next module.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Demonstrate knowledge of the electromagnetic spectrum by:

   a. Defining electromagnetic and electromagnetic spectrum.
   b. Stating that X-, ultra-violet and infra-red radiations emanate from different parts of the spectrum.
   c. Indicating roughly on a depiction of the spectrum the area from which light, X-, ultra-violet and infra-red radiations emanate.
   d. Stating at least one way in which each radiation affects the human body: e.g., X-radiation destroys tissues; ultra-violet facilitates the formation of Vitamin D, but can damage retinal cells of the eye, and also produces suntan; infra-red can cause burns, warm the body surface.
   e. Stating at least one source of each: e.g., X-radiation for X-rays (dentist's office, chest X-rays, etc.); ultra-violet from sun; infra-red from heat lamps, sun, fire, etc.

2. Describe the measurement of wave-lengths by:

   a. Stating that short wave-lengths are measured in Angstrom units.
   b. Citing one use of Angstrom units.
      Tie-in with Social Studies.

Objectives -- Continued

c. Stating why negative powers of ten are a useful notation from mathematics to express tiny lengths and demonstrate understanding by interpreting such measurements in another mathematical form.
Tie-in with Mathematics.

3. State for at least one form (X-radiation, ultra-violet or infra-red) a benefit and a risk. See Objective 1.d.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Prepare a set of charts/posters or a mural showing the electromagnetic spectrum, appropriately labeled, and the sources and uses of X-, ultra-violet and infra-red radiation in both the students' everyday lives and health services.
Tie-in with Art.

   a. Teacher-led discussion of the need for X-rays in community health services.
   b. Have the students indicate the portion of the electromagnetic spectrum associated with X-, ultra-violet, infra-red and light energy.

2. Compile a list of different jobs using X-rays; have each student start a notebook-scrapbook on one such occupation, these to be completed during the next module.

3. Make charts of the electromagnetic spectrum and label them. These should be drawn to scale.
Tie-ins with Mathematics, Graphic Arts.

4. Resource persons: Guest speaker on radiology. Write a job description of a radiologist following his presentation.

5. Teacher demonstrations:

Activities -- Continued

a. Ultra-violet waves and a sunlamp.
b. Demonstrate infra-red waves and a heat lamp.
c. Write a short essay to contrast the sun-lamp and the heat lamp.

6. Open discussion:

a. Students describe their experiences with the three forms.
b. Students describe safety precautions needed in working with or associated with the three forms and make a list of these.

7. Quests: (Tie-Ins with Social Studies, Language Arts)

a. Prepare an oral or written report on the use of X-ray sensitive badges by those working with X-rays.
b. Prepare an oral or written report on the role of the Atomic Energy Commission in establishing standards for protecting workers from X-rays.
c. Prepare an oral or written report on the role of the atmosphere in protecting us from these forms of energy.
d. Prepare an oral or written report on the history of X-rays, including illustrations. Tie-Ins with Language Arts, Social Studies, Graphic Arts.
e. Prepare a poster depicting the Geiger counter and one or more of its uses. Include explanatory notes.
Tie-In with Graphic/Industrial Arts.
f. Research and prepare an oral or written report on the potential hazard from X-rays emitted by TV sets, especially color TV.
Tie-Ins with Language Arts, Social Studies.

Materials:

1. Model of X-ray tube
2. Discarded chest and teeth X-ray negatives

Materials -- Continued

3. Ultra-violet lamp
4. Infra-red lamp
5. Fluorescent materials
6. Radiometer
7. Metric rulers
8. Films from D. C. Schools Audio-Visual Department:
   a. "Waves and Energy" (I-S), #1561, 11 min. -- Common wave characteristics of light, sound and radio waves
   b. "Electromagnetic Waves" (S), #1224, 30 min., 1961 -- X-ray; visible light; microwave; and radiowaves
9. Book: Radiation, Magnetism, and Living Things, Daniel S. Halacy; Holiday House, 1966.
10. From library: "Horizons Unlimited" -- in depth information on preparation for and rewards of fifty careers in medicine -- from American Medical Association, 535 N. Dearborn, Chicago, Illinois, 60610.
11. Information about careers, write: American Registry of Radiologic Technologists, 2600 Wayzata Boulevard, Minneapolis, Minnesota, 55405.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Community Social and Health Services

SOCIAL STUDIES--Caring for the Needs of the Unemployed

Purpose: To learn about social services designed to assist the unemployed, and occupational opportunities associated with these.

Our Constitution lists life, liberty and the pursuit of happiness as inalienable rights that the federal and state and local governments should protect.

If life is an inalienable right, then those who are victims of limited physical or mental capacities or unfortunate circumstances should fall within the constitutional category of the "Protected."

If the pursuit of happiness is an inalienable right, then facilities must be furnished to make that pursuit possible.

Unemployment is presently a serious and growing problem facing the U. S. It deprives the jobless worker of life, liberty and the pursuit of happiness; it has a severe debilitating impact on all of society.

There are many services provided to ease the problem of unemployment. By learning about these services, students may be motivated toward occupations directly related to dealing with unemployment and its consequences while broadening their concepts of this social disruption.

Objectives: Upon completion of work in this unit the student should be able to:

1. Describe unemployment as a social disruption of economic nature by:

   a. Citing reasons for unemployment, including economic recession and depression, technological developments, and lack of qualifications for jobs.
   b. Describing consequences of unemployment to show how these can cut across social, racial and ethnic lines and affect even highly skilled professional workers.

Objectives -- Continued

c. Supporting a and b above with instances from today's situation, using newspaper, magazine and other information sources.

2. List several social service agencies combatting unemployment and describe the services provided by at least one of them.

3. Describe at least one such occupation: position, responsibilities and duties, entry requirements, salary range, etc. associated with social service agencies.

4. Construct and interpret graphs and charts and tables showing employment and unemployment data.

   a. Construct a graph or chart from a table of data.
   b. Explain a graph, chart or table.

Activities: To accomplish these objectives the student may engage in activities such as:

1. High Impact:

   a. View the film, "Grapes of Wrath" and describe a major character in writing.
   b. Open discussion: Reasons for the plight of the "Okies" and kinds of consequences.
   c. Prepare bulletin board/poster displays depicting various aspects of unemployment, including newspaper and magazine articles.

2. Resource persons:

   a. Guest speaker from the U. S. Department of Labor to present an illustrated talk on how the unemployment index is calculated, the concepts of un- and underemployment, and how and why various persons are not counted in the index. Include graphs, charts and tables, with emphasis on their interpretation. Note: This could also be a university economist.

Activities -- Continued

Students should prepare questions and do follow-up calculations of an unemployment index.

b. Guest speaker from a suitable agency or group to discuss the problems encountered by veterans returning from Viet Nam. Make a list of possible solutions to these problems for future class discussion.

c. Guest speaker on the subject of job entrance requirements, with emphasis on how these rightfully and wrongfully impede employment of "disadvantaged" persons from all social, racial and ethnic groups. Choose an occupation in social work and make a list of what you believe would be the necessary entry requirements.

3. Construct graphs and charts on various aspects of unemployment: e.g., trends since 1930, Black vs. white comparisons, etc. State interpretations of these. Tie-In with Mathematics, Graphic Arts. Emphasize skills in finding and interpreting tables of data as the sources for the graphs/charts.

4. Quests:

a. Prepare a poster depicting comparative advantages of graphs and charts for quick visual interpretation.
Tie-In with Art.

b. Prepare a poster depicting misleading use of graphs and charts.
Tie-In with Art.

c. Research and make a list of agencies, programs and services designed to deal with various aspects of unemployment. Include the name, address, telephone number, services provided, those for whom the services are intended, and how those needing the services can obtain it.
Tie-In with Language Arts, Graphic/Industrial Arts if you wish to print the list.

d. Panel discussion or debate: Women Should

Activities -- Continued

Stay at Home -- increasing trend for women's equal rights and for women to work may increase unemployment among men. Pros and Cons on this or similar theme. Write a short paragraph of your opinion on the subject both before and after the discussion.

e. Group to prepare and present a detailed plan for combatting unemployment among Black youth and young adults.

5. Prepare an oral or written account of the effects of unemployment on a particular individual or family. The accounts can be documentary, short stories, a diary, etc. Emphasize representing different social, racial, and ethnic groups, as well as highly skilled professional workers.
Tie-In with Language Arts.

6. Quests:

a. Compile a list of occupational opportunities associated with these services.
b. Select one such occupation and prepare an oral or written report about it.

Materials:

1. Some sources of information on unemployment available at:
a. Bureau of Labor Statistics, U. S. Department of Labor
b. U. S. Department of Health, Education and Welfare
c. U. S. Chamber of Commerce
d. Bureau of the Census, U. S. Commerce Department
e. Board of Trade

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Community Social and Health Services

HOME ECONOMICS--Home Nursing

Purpose: To explore and practice the knowledge and skills necessary in caring for the sick at home.

Objectives: Upon completion of work in this unit the student should be able to:

1. Administer medications correctly:
   a. Interpret labels.
   b. Pour liquid medication.
   c. Use an eye dropper.
   d. Rub on medication.
   e. Spray on medication.
   f. Administer pills.
2. Demonstrate patient bed care skills:
   a. Assemble bathing items and arrange on a tray.
   b. Bathe a bed patient.
   c. Care for the mouth of a bed patient.
   d. Dress the bed patient.
   e. Change the bed clothes.
3. Prepare and serve a special diet for the patient:
   a. Plan the diet.
   b. Prepare an approved diet.
   c. Serve the diet.
4. Demonstrate skills for amusing/entertaining the patient:
   a. List books or stories for children, teenagers, adults.
   b. Make a game or toy for entertaining children.
5. Administer simple first aid:
   a. Mouth-to-mouth resuscitation.
   b. Apply a tourniquet.
6. Cite methods of securing help in an emergency situation:
   a. Quickly find telephone numbers for an

Objectives -- Continued

ambulance, physician, policeman, fire department, rescue department.

7. Apply the above in real nursing situations.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Collect labels from different medical containers and write an interpretation for use of each.

2. Read "Tomorrow's Homemaker," pages 291 and 292. Write a summary of the article.

3. Practice individually reading labels, pouring medication, giving medications with a dropper, rubbing on medication, spraying on medication, and administering pills.

4. Assemble and arrange on a tray the bathing items needed for bathing the patient.

5. Resource persons:

   a. Have a nurse-consultant give a demonstration of bathing the bed patient, caring for the mouth, dressing the bed patient, and changing the bed. Have the students repeat the demonstration, monitoring each other.
   b. First-aid demonstrations on artificial respiration, burns, cuts, etc. Rescue workers, firemen, life guards, etc.

6. Research diets for various kinds of patients and get samples of diets from a dietitian. Tie-In with Social Studies.

   a. Plan a meal for an approved diet and serve the meal to a diabetic, for example.

7. Plan and prepare for amusing or entertaining patients at different age levels:

Activities -- Continued

a. List games suitable for bed patients.
b. List books and stories.
c. Make, collect or buy toys for children to use in bed.

8. Read first-aid leaflets on what to do in case of emergencies; Role-play various emergency situations.

9. Prepare a notebook or index card of emergency numbers to call: ambulance, physician, fire department, rescue department, police department, etc.

   a. Simulating an emergency, one student describes it, the others find number to call, and one or more students practice calling the number on a dead phone (role-playing).

10. Quests:

    a. Volunteer to serve in a community social or health service.
    b. Prepare an oral or written report on their use of home nursing skills at home in a specific instance.

Materials:

1. Textbook on home nursing: Tomorrow's Homemaker, Lewis, Banks & Others; Macmillan Co., New York, 1960.
2. First-aid leaflets, American Red Cross
3. Bath supplies: towels, washcloths, soap, pan, tray, etc.
4. Bath toiletries: same as 3 above
5. Diet charts
6. Games, books

INDUSTRIAL ARTS

Purpose: To develop positive attitudes and practices in the shop.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate safety practices to promote a healthy environment in the industrial arts laboratory.
   a. State and explain safety rules.
   b. Identify sources of hazards in the laboratory and elsewhere: home, school, community.
2. State general rules of safety applying both in the shop and elsewhere: home, school, community.
3. State the relationship between good housekeeping and good health habits, and give examples.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Set up the rules and regulations for the industrial arts laboratory and select student inspectors.
   a. Discuss the reasons for the rules and regulations, the pros and cons of rotating and nonrotating student inspectors, and the general applicability of the rules and regulations to non-shop situations: home, school, community.
2. Plan and prepare a chart to display a schedule of assigning students to shop cleanup duties on a rotation basis.
   a. Open discussion: The possible negative consequences of using assignment to cleanup duties as a punishment as often is done in military situations; that is, how such disciplinary practices might create

Activities -- Continued

poor attitudes toward individual responsibility for cleanup.

3. View films on health hazards in the home, school, community.

   a. Write comments on personal opinions of the effectiveness of the films as means for communicating such information and promoting health and safety.

4. Make posters, safety signs and slogans. Tie-In with Art.

5. Compile a notebook on the rules and regulations from Activity 1, as well as a list of new words and technical terms that are applicable to safe practices in the industrial arts laboratory.

6. Quests:

   a. Teams can locate and, as feasible, obtain photographs of unhealthy/unsafe conditions in the community.
   b. Make posters presenting health/safety problems: "What's wrong in this Picture?"

Materials:

1. Aprons
2. Goggles
3. Gloves
4. Insulated tools (pliers, screwdriver)
5. Camera, film

CLUSTER 1 - Grade 8

PUBLIC SERVICE OCCUPATIONS

Unit/Topic 4 - Law Enforcement

Topic: Law Enforcement (Municipal and Federal)

Purpose:

Explore occupational opportunities in law enforcement.

Broaden the students' concepts of law enforcement.

1. organization
2. functions
3. policeman as a person

Main Ideas:

1. There are many occupations within law enforcement other than the policeman as "man-on-the-beat" (See Career Opportunities).

2. Credentials and requirements are changing:

   a. man-on-beat to college degree or equivalent
   b. technical positions (crime laboratory, etc.)

3. Law enforcement a much more complicated operation than realized, not just man-on-beat, detectives.

4. Police-community relationships are changing:

   Discuss:
   a. Issue of civilian review boards
   b. Community-police groups (ethnic groups)

Quests:

1. Make bulletin boards depicting law enforcement officers doing other than "man-on-the-beat" jobs.
2. Invite law enforcement officers for a day at school.

Career Opportunities:

1. Semi-Skilled

   Clerk (general), detective, electronic surveillance technician, fingerprint technician, laboratory aide, switchboard operator, tape librarian, truck driver.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Law Enforcement (Municipal and Federal)

LANGUAGE ARTS

Purpose: To broaden the student's concept of municipal and federal law enforcement.

To improve total language arts competency, particularly reading for information and speaking from notes.

Objectives: Upon completion of work in this unit the student should be able to:

1. Organize and annotate clippings on a particular topic.
2. Write a review of a film that includes minimum content requirements.
3. Make an oral presentation on the activity in either objective 1 or 2.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Keep a scrapbook of newspaper clippings on municipal and federal law enforcement:
   a. Have specific categories of articles for organizational purposes.
   b. Annotate each clipping.
   Tie-in with Art to design covers for the scrapbooks.
2. Write a review of the film "Not All Cops - Not All Kids". (Prince Georges County)
   a. Open discussion. Decide on and make a list of the minimum content requirements for a film review.
   Tie-in with Science to study topic like finger-printing.
3. Give a short (two-minute) talk from notes on the film "The Odds Against". (Prince Georges County)
4. Read pamphlets about qualifications for

Career Opportunities -- Continued

2. Skilled

Air traffic controller, automobile body repairman, automobile mechanic, chemical technician, clerk stenographer, employment interviewer, illustrator, photographer, public accountant (certified), radio or television broadcast technician

3. Professional

Accountant, artist, biologist, chemist, coroner, criminologist, F.B.I. agent, general attorney, lawyer, parole officer, personnel manager, physician, psychologist, pathologist, statistician, teacher, college professor.

Activities -- Continued

municipal and federal law enforcement jobs (Washington, D. C. Police, FBI).

a. Select one such position and prepare a summary of the qualifications, which may be in the form of an advertisement recruiting applicants.

5. Report orally, at the end of the unit, on how the scrapbook has been organized (see Activity 1) and why.

a. Examine and discuss each others' scrapbooks and select the most interesting one(s).

Materials:

1. Manila scrapbooks (5-6 pages stapled at left) for each child
2. Films:
   a. "Not All Cops - Not All Kids"
   b. "The Odds Against"
3. Pamphlets from Washington, D. C. Police Department, Federal Bureau of Investigation (FBI)

MATHEMATICS--System of Whole Numbers and Fractions

Purpose: To show that mathematics is invaluable to law enforcement in that many laws are based on justifications supplied by mathematics and mathematicians or statisticians.

Objectives: Upon completion of work in this unit the student should be able to:

1. Add whole numbers with four or more addends by calculating the "number" and to indicate the use of the commutative and associative laws of addition.

2. Perform the four fundamental operations with whole numbers and common fractions in calculating the cost of drugs and the returns on the numbers game; identify the use of such laws of mathematics as the commutative, associative, and identify laws of addition and multiplication.

3. Convert percents to decimal numerals, using as examples the percentages of municipal budgets allocated for various public services, such as education, law enforcement, etc.

4. Multiply decimal numerals by decimal numerals to calculate the tax on alcoholic beverages.

5. Identify odd and even numbers, including the numbers on dice in the game of craps.

6. Calculate equally probable probabilities with reference to the game of craps.

To accomplish these objectives the student may engage in activities such as:

1. Calculate the estimated value of drugs confiscated in a drug raid. The teacher may supply hypothetical data, but preferably the information should be taken from newspaper reports. Give the number of bags or other unit of drugs and the current price of each, the student should calculate the total value of the confiscation.

Activities -- Continued

a. You may wish to review here the comparative efficiency of multiplication versus repetitive additions and to have the student indicate the application of the laws of commutation and association in his calculations throughout the activities.

2. Calculate the odds for hitting the number and the odds against hitting the number. Then have the students prepare a chart showing the results. Open discussion--ask the students what relationship the odds they have calculated may have to why the numbers game is illegal. Tie-In with Art to make a bulletin board of findings such as, "Do you think betting on the numbers is smart."

3. Calculate the return on playing the same number one thousand times for any sum of money where the number is "hit" only one time. Have the students chart the results.

4. Calculate the cost of a large quantity of alcoholic beverages, using arbitrary but realistic data. Have them calculate the untaxed and taxed amounts and the total. Then have them calculate the effects of both an increase in the untaxed price and an increased tax rate. Use the results for an open discussion of how "overcharging" might reduce tax income by reducing consumption and how "overtaxing" might promote the manufacture and sales of illegal (untaxed) alcoholic beverages.

5. In relation to 4., calculate the amount of tax dollars lost by the government through "bootlegging". Research to find estimates for the number of bootleggers operating in one year and the average annual gross of each.

a. You may wish in this context to obtain data from the federal law enforcement agency responsible for "policing" federal taxes on alcohol.

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Activities -- Continued

6. Calculate the probabilities associated with each outcome in the game of craps. Calculate the probabilities of even and odd numbers as outcomes. Use common fractions; convert these to percents and percentages

Materials:

1. Paper and pencils
2. Chart paper
3. Colored pens or crayons
4. Information on the numbers game
5. The cost of various drugs
6. The local and federal taxes on alcoholic beverages and the untaxed cost

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Law Enforcement

SCIENCE

Purpose: To explore how the modern policeman uses many technical aids in his work, particularly those involving electronics.

Objectives: Upon completion of work in this unit the student should be able to:

1. Name at least five examples of natural and man-made magnets.

2. Write and demonstrate understanding of the law of and theory of magnetism.

3. Make a permanent electro-magnet using simple materials.

4. Describe the relationship between magnetism and electricity and define an electric current.

5. List four electro-magnetic devices and describe their use by the police officer in his work.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Demonstration of a commercial walkie-talkie radio. Analyze its audio speaker part. Find the permanent magnet there. Demonstrate on an old radio, stereo, or TV speaker's magnet.

2. Bringing in many different kinds and shapes of permanent magnets. Use a standard magnet compass to discover the law of magnets.

   Teacher-led discussion of the theory of magnetism. Pupils will record the theory in their notebooks.

   Make permanent magnets from steel needles and identify and label their polarities.

   Demonstration of a magnet producing an electric current with a coil of wire and a galvanometer. Answer the question; "Could electricity produce magnetic effects?" experimenting with wire,

Activities -- Continued

battery, switch, and compass needle. Teacher will help students to analyze their observations.

6. Summarize in writing the electric current effects on magnetic materials and the magnetic effect on an electric circuit.

7. Make electromagnets from wire, a nail, dry cell, and switch. Test them. Generate mini-currents by moving a magnetic field past a coil of wire hooked to a galvanometer.

8. Quests:

   a. List as many devices as possible, in addition to the walkie-talkie radio speaker, which use the electro-magnetism relationship.
   b. Research how these are used by the police and write a description of the uses.
   c. Summarize all facts learned about magnets and electricity in this topic by preparing objective test questions, items agreeable to the class. Re-teach where necessary.
   d. Demonstrate to other class members the combination of permanent magnets and electro-magnets in an old telephone receiver.

Materials:

1. Lodestone
2. Bar magnets
3. U-Shaped magnet
4. Galvanometer
5. Copper wire
6. Nails
7. 1 1/2 volt dry cell
8. Electric switches
9. Small magnetic compasses
10. Discarded speakers
11. Two walkie-talkie radios in operable condition
12. Steel needles

Career Development Curriculum Guide: Grade 8
Public Service Occupations, Law Enforcement and the Fire Department

SOCIAL STUDIES

Purpose:

To broaden the student's concept of the responsibilities of municipal and federal law enforcement agencies and their personnel.

To explore occupational opportunities associated with law enforcement and the fire department.

Every society devises methods for protecting its citizens from the ravages of man and nature. Among those in our society are the police and fire departments. During the early stages of America's development, when most of the population was living in rural areas, the local sheriff was able to handle most of an area's crime problems, assisted on occasion by deputies. The problem of fighting fires was left up to volunteers. As late as 1828 New York City had only night watchmen, who patrolled the streets, looked for fires, and dealt with troublemakers.

As cities grew and many new problems arose, better methods of dealing with crime and fires were needed. After 1960, uniformed police forces and fire departments were established in cities throughout the United States. Since then, of course, local, state, and federal law enforcement agencies have become an integral -- if at times controversial --ingredient of our lives. And, while volunteer fire departments remain the rule in many places, increasingly fire departments have become a part of public services with paid employees operating under civil service.

Objectives:

Upon completion of the work in this unit the student should be able to:

1. Describe the responsibilities and duties of policemen and firemen--their roles in protecting us.

    a. Describe briefly what might happen were the police or fire departments to cease.
    b. Determine if attitudes toward police and firemen improve as evidenced in a student-designed and executed survey after this study.

Objectives -- Continued

2. List at least 5 occupations other than policeman on the beat, e.g., detective, desk sergeant, fireman with law enforcement agencies and the fire department. Describe at least one of these occupations briefly: title, general responsibilities, entrance requirements (education/training, etc.), salary range, etc.

3. Discuss some of the cooperative relationships among municipal, state, and federal law enforcement agencies.

   a. State at least one kind of problem for which the solution requires cooperation among local, state, and federal law enforcement agencies.
   b. Describe briefly the relationship between the police and the fire department when the latter is fighting a fire.

4. State and describe briefly one or more possible negative consequences of using violence as a means to achieving reform.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Resource persons: Police officers from D. C., Md., Va. discussing the problem of "hot pursuit" in a panel with students asking pre-prepared questions.

2. Field trips:

   a. The Federal Bureau of Investigation.
   b. The local fire department or central headquarters. Write a description of the sequence of events when a fire is reported.

3. Gather data to examine the correlation between the growth of cities and the expansion of police and fire-fighting services.
   Tie-In with Mathematics.

4. Open discussion: The need for effective police

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vities -- Continued

and fire-fighting services:

a. What might happen were the police and/or fire departments to cease operating (have some students do research; for example, the experience in Montreal, Canada when the police went on strike)?
b. How do community relations affect police and fire departments' effectiveness? Include, as feasible, police and community views on such issues as police brutality charges, civilian review boards, community control, and cooperation of the public with the police in fighting crime. A student panel discussion involving role playing might prove successful, especially if representatives of alternate views could participate as reactors.

5. When considering occupational opportunities:

a. Gather data on various occupations in the police and fire departments.
Tie-In with Language Arts, Activity 4.
b. Select one occupation and describe it in a brief oral report covering the aspects listed in Objective 2.
Tie-In with Language Arts, Activity 4.

6. Inter-agency cooperation:

a. As a Tie-In with Language Arts, Activity 1. Include cooperative actions of law enforcement agencies as one category for filing newspaper clippings in their scrapbooks.

7. Open discussion: Interpretation of the meaning of the statement "Liberty without order and order without liberty are equally destructive." After the discussion write your interpretation of the statement.

8. Open discussion: Interpretation of Muhammad Ali's statement that "If Black people use

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Activities -- Continued

violence, it would be the same as a bull running head-on into a locomotive--there's no way to win." Include discussion of various possible non-violent means for achieving change and the role of laws and law enforcement agencies. Collect examples from newspapers and magazines of possible non-violent means.

9. Within-school "field trip." Inspection of the fire exit routes, fire alarms, fire extinguishers, and other fire protection aspects of the school. Write an opinion on their adequacy.

10. Quests:

    a. Write a report on D. C. police protecti of foreign diplomats.
    Tie-In with Language Arts--report writi formats for all quests.
    b. Research INTERPOL (International Police Agency) and report orally to the class from notes and using visuals (e.g., cha board, overhead transparencies, posters Tie-In with Graphic Arts, Language Arts
    c. Research some aspects of ethnic groups relation to law enforcement and crime, such as the reasons underlying the high proportion of Irish policemen in some urban areas, the truths and fictions a- bout the role of Italians in prohibitio violations, etc. Prepare a written re- port, including data in tubular and/or graphic form.
    Tie-Ins with Language Arts, Mathematics Graphic Arts.
    d. Interview a community based fireman and prepare an oral or written report. Hav pre-prepared questions and use a tape r corder if possible.
    Tie-In with Language Arts.
    e. Prepare an oral or written report on th great Chicago fire, the Peshtigo, Wisco

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ities -- Continued

fire, the Triangle Building fire in New York City, or the fires during the disturbances in the Watts area of Los Angeles. Include an analysis of the difficulties encountered by fire fighters and equipment.

f. Prepare a report describing Dr. Martin Luther King's non-violent strategy for achieving social change and instances of its application.

rials:

1. National Academy of Sciences-National Research Council, Committee on Fire Research-2101 Constitution Avenue, Washington, D. C. 20418
2. "Parade Magazine," The Washington Post, "The Undeclared War on the Nation's Firemen," July 18, 1971, pp. 4-7.
3. "Potomac Magazine," The Washington Post, "A New Look for the Fuzz, July 18, 1971, pp. 8-11.
4. Issues Today, "The Police: Villains or Victims," December 4, 1970.
5. Issues Today, "Youths Accused of Crime," January 8, 1971.
6. The Washingtonian, "Where's the Fire, Buddy?" March, 1971.
7. Issues Today, "Violence in America," January 22, 1971.
8. Life, "The 47-Year Reign of J. Edgar Hoover," April 3, 1971.

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Career Development Curriculum Guide: Grade 8
Pubic Service Occupations, Law Enforcement

HOME ECONOMICS

Purpose:

To increase awareness of how laws and law enfor ment protect us and society in our daily home a public living.

The greater the inter-dependency in living, the more necessary are laws and law enforcement for protecting society and its members. With respe to consumers and homemaking, it is becoming increasingly appreciated that the traditional con cept of "let the buyer beware" must be replaced by effective legislation for ensuring protectio of consumer rights.

Objectives:

Upon completion of work in this unit the studen should be able to:

1. Discuss why laws and law enforcement are necessary to the individual as well as to society and must protect the rights of both

2. Describe three laws that regulate food, clothing, health, safety (home-personal, industrial, public), and housing.

3. Locate evidence of laws and labels that pro tect consumers and homemakers.

Activities:

To accomplish these objectives the student may gage in activities such as:

1. Buzz session. Why laws and law enforcement are necessary, with emphasis on the protect of consumers and homemakers. A summary of ideas will be written by the students at th end of the session to be presented to the class.
Tie-In with Social Studies.

2. Buzz session. Discuss the effectiveness of laws that protect the individual versus tho to protect society (e.g., driving an automo on the right side of the street or of a dua highway). This activity can be combined wi 1.

Activities -- Continued

3. Write reports on why laws are designed to protect the public by protecting the individual. Tie-In with Language Arts.

4. Write or give orally from notes reports on at least one law for each of the following headings:

   a. Food
   b. Clothing
   c. Health
   d. Housing
   e. Safety
      -home-personal
      -industrial
      -public

5. Prepare displays (bulletin board, posters, scrapbooks) of newspaper and magazine articles on laws and law enforcement dealing with the protection of consumers and homemakers. Tie-In with Art.

6. Find laws or labels/stamps on the following:

   a. Meats--stamping
   b. Electrical appliances--tags, seals, warranties
   c. Medications--by prescription only, dangers or hazards stated on labels (e.g., poison; not for internal consumption).
   d. Traffic laws
      1) Operator permits
      2) Auto safety
   e. Occupations--work permits
   f. Clothing labels for fabric content, cleaning directions

7. Resource person: Invite a nurse, police representative, or other resource person to talk about respective laws in their fields. Write a summary of their visit.

Materials:

1. Textbooks:
   a. Cross, Aleene, Introductory Homemaking. J. P. Lippincott Co., Philadelphia, New York, 1970.

Materials -- Continued

b. Davis and Peeler, Lessons in Living. Ginn and Company, Boston, Mass., 1970.

2. Reference Books:
   a. Denman, Frank. The Law--It's on Your side. Macmillan Co., New York, 1963.
   b. Newman and Sherman. About the People Who Run Your City. Melmount Publishers, Inc., Chicago, Ill., 1965.
3. Magazines:
   a. Consumer Reports: Published monthly by Consumers Union of U. S., Inc., 256 Washington Street, Mt. Vernon, N.Y. 10550
   b. U. S. News and World Report: by U. S. News and World Report, Inc., 2300 N. Street, N.W., Washington, D. C. 20037
4. Dictionaries
5. Sample labels from clothing, food cans and the like, electrical appliances, prescribed medicines, etc.
6. Sample work permits, auto operator permits, learner's handbook

INDUSTRIAL ARTS

Purpose:

To develop knowledge and understanding of laws concerning safety practices and safeguards for industrial shops and tools and equipment.

To explore, within the context of shop organization and maintenance, how rules and regulations are necessary to protect the shop users as a "mini-society" and each user as an individual.

To develop and improve skills in the use of tools and equipment.

To develop students' leadership abilities.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge and understanding of how law enforcement agencies function and their relationship to the judicial system by answering questions orally or in writing.

2. Demonstrate knowledge and understanding of the shop rules and regulations, as shown by
   a. Stating the rules and regulations.
   b. Explaining the why of them.
   c. Applying them in the shop.

3. Use shop tools and equipment with skill.

4. Organize a specific activity in the shop.

Activities:

To accomplish these objectives the student may engage in activities such as:

1. Cooperatively determining and managing the school shop to implement the shop rules and regulations.

   a. The shop foreman acts as the hearing officer when there are infractions of the rules.
   b. Assume the role of hearing officer, either as individuals or as a hearing board.
   c. Take turns acting as an appeals board with respect to decisions in a., b. above.

Activities -- Continued

2. Produce signs and slogans (posters) for safety and other shop/school regulations. Tie-In with Art.

3. Resource persons:

   a. Rap session with representatives of law enforcement agencies asking them prepared questions about their relationship to the judicial system.
   b. Interview the Park Police Chief or "District" Police Captain and prepare an oral or written report. Tie-In with Language Arts.

4. Field trips:

   a. Examine a courtroom (Note: The Law School at Catholic University has a classroom called the "Mock Courtroom" that might be interesting to visit for this purpose). Make sketches of the layout of the courtroom.
   b. Receiving home: Industrial Arts Shop.
   c. U. S. Park Police Headquarters, Department of the Interior.

5. Make scrapbooks/notebooks reflecting shop and school rules and notes on field trips. Tie-In with Language/Graphic Arts.

6. Quests:

   a. Research paper on Juvenile Court operations. Tie-In with Language Arts, Social Studies.

   b. Designing and making miniature and life - size models of a courtroom where the actual hearings would be held for those violating shop rules and regulations, based on the field trip.

Materials:

1. Plaster of Paris

Materials -- Continued

2. Industrial Arts tools and equipment
3. Published list of social agencies
4. Plywood, wallboard, cardboard

CLUSTER 1 - Grade 8

PUBLIC SERVICE OCCUPATIONS

Unit/Topic 5 - The Fire Department

Career Development Curriculum Guide: Grade 8
CLUSTER/MODULE: PUBLIC SERVICE OCCUPATIONS

Topic: Fire Department

Purpose: To explore occupational opportunities within the Fire Department.

To broaden students' concepts of the functions of the Fire Department.

Main Ideas:
1. Occupational opportunities in the Metropolitan and Washington, D.C. proper areas.
2. Volunteer services vs. city-supported services.

Quests:
1. Construct a fire house and engine.
2. Chart the organization of the fire department with the duties of each officer.
3. Locate pictures of old and new fire-fighting devices and write a short commentary on each.
4. Cut out newspaper articles on fires and fire-fighting.
5. Prepare fire instructions to fit a possible emergency in the home.
6. Draw and label diagrams of fire exits in their home or apartment.

Career Opportunities

1. Semi-Skilled

   Switchboard operator, truck driver

2. Skilled

   Automobile mechanic, chief,employment interviewer, fireman

LANGUAGE ARTS

Purpose:

To learn what the city fire department does and to explore various job roles in that department.

To learn the use of language skills in fire prevention.

To continue the development of total language arts competency.

Objectives:

Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge of the city fire department by:
   a. Stating its functions.
   b. Listing its main sub-divisions.
   c. Listing various occupational opportunities.
   d. Describing at least one such occupation: title, responsibilities and duties, entry requirements, salary range, advancement, etc.

2. Identify and use strong verbs as they relate to fire prevention.

3. Conduct an interview with another student on his opinion of a film.

Activities:

To accomplish these objectives the student may engage in activities such as:

1. View feature film, "Fahrenheit 451." Make a tape, recording individual commentary on and reactions to the film. Note: This might be done as a group activity involving "man-on-the-street" interviews.

2. Write a narrative essay on the history of fire engines.

3. Write a descriptive essay on the firefighting demonstration, using clean diction and strong verbs.
   a. Identify from lists and prepare lists of stronger and weaker verbs.
   b. Find strong verbs in literature on fires and firefighting.

4. Prepare enlarged versions of charts on the functions and/or organization of the fire department. Tie-

ctivities - Continued

in with Graphic Arts.

5. Read for details from material on fires and firefighting, preferably something from science. Use their written essays, if this can be done in a positive way to encourage young writers. Mark observed details.

6. Write personal thank-you notes to the fire company for the demonstration, stressing what was learned from the experience. Compile these into a booklet for the fire department.

7. Have a mini-school fire drill. Keep time records on it for comparison with later drills. Tie-in with Mathematics, Science.

8. Compile a listing of signs associated with fires and fire prevention. Include motel/hotel signs.
   a. Convert the simplified signs into complete sentences, with the original words underlined or all caps.
   b. Prepare signs from complete sentences.
   c. Select signs using difficult words and prepare displays explaining these signs. Tie-in with Graphic Arts.

9. Draw and label diagrams showing the fire exits and escape routes for their homes, plus a set of directions to fit a possible emergency in the home. Prepare a set of signs that might be posted in their homes. Tie-in with Graphic Arts.

10. View films:
    a. "Fire Safety is Your Problem"
    b. "Fire Prevention in the Home"
    c. "Firefighters"
    Write a summary of each film as you would tell another student about its content/message.

11. Quests: Prepare displays of articles, pictures on fires and firefighting.

Materials:

1. Films:
   a. "Fahrenheit 451" (Feature Film; Universal Catalogue)

Materials - Continued

b. "Fire Safety is Your Problem" (Twining #958)
c. "Fire Prevention in the Home (Twining #1817)
d. "Firefighters" (Twining #1120)
2. Cassette/tape recorder, blank cassettes/ reels
3. Literature from the Washington, D.C. Fire Department on its functions, organization, occupational opportunities.
4. One or more reading selections.

MATHEMATICS

Purpose: To explore the application of mathematics to various statistics associated with the fire department, fires and fire prevention.

Objectives: Upon completion of work in this unit the student should be able to:

1. Calculate average cost and frequency of an event from data available in a survey.

2. Solve verbal problems requiring any of the four fundamental operations with whole numbers and fractions.

3. Represent data from a survey graphically.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Conduct a sample survey of the cost of fire losses, comparing ghetto and non-ghetto areas in the Washington, D.C. area for a three-year period. Tie-in with Social Studies.
   a. Calculate the average for the three-year period and for each year within it, making the comparison.
   b. Prepare a poster depicting the results. Tie-in with Graphic Arts.

2. Conduct a survey of the cost and number of false alarms occurring within the D.C. area for a one-month period. Represent the data graphically by month. Calculate the monthly average frequency and cost. Indicate each time one of the four fundamental operations is used with whole numbers and fractions.

3. Assume function of electrical technicians and calculate the total cost (equipment,labor) to install fire detectors and extinguishers in all of the D.C. schools. Tie-in with Social Studies for research to establish cost data, number required to equip all of the school adequately.

4. Collect data from at least five (5) fire in-

Activities - Continued

surance companies in the D.C. area as to the cost of fire insurance for buildings (homes, apartments, businesses) and/or the contents therein. Tie-in with Language Arts, Social Studies. Calculate the average cost of the insurance for homes and apartments.

5. Quest: Relate these insurance data to ghetto and non-ghetto areas. Tie-in with Social Studies.

Materials:

1. Graph paper

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Public Service Occupations, Fire Department

SCIENCE--Combustion

Purpose: To show that firefighting and prevention is a highly skilled activity involving a thorough knowledge of chemical change.

Understanding of heat, light and the structural and chemical changes brought about by combustion involves a basic knowledge of the behavior of matter. The changes brought on by the application of heat energy are extremely important to the firefighter.

Objectives: Upon completion of work in this unit the student should be able to:

1. Describe the process of combustion (7th grade--chemical change) and write a simple oxidation equation.

2. State the importance of oxygen at the site of a fire to life and to combustion.

3. Cite instances of structural changes occurring under conditions of intense heat that are not immediately apparent to the eye.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Demonstration-review on chemical changes brought about by combustion:
   a. Ignite a cardboard house made from a box (windows, door, cellophane window panes, etc.) to simulate a house on fire.
   b. Develop with the students the elements of combustion as an oxidation process:

$$\underline{\text{Fuel}} + \underline{\underline{\text{Starter Energy}}} + \underline{\text{Oxygen}} - \underline{\text{Heat Light}} \quad \text{Energy} + \underline{CO_2} + \underline{H_2O}$$

2. Experiment: Determine the effect of removing any one of the three necessary factors to the left of the equation to show that combustion can not take place without all three. Write a statement of the importance of each factor.

Activities - Continued

3. Teacher discussion comparing combustion with cellular respiration inside the human body to identify common factors. Make a list of these common factors.

4. Make soda-acid fire extinguishers of carefully formulated strength to demonstrate how a fire extinguisher uses chemical change. There is danger of spraying pupils if the acid is too concentrated. Test this in advance to get the right molarity for the acid.

5. Experiment-review: Demonstrate the change in materials due to heating with the ring and ball expansion apparatus. State the explanation of the changes with very precise wording.

6. Resource person: Have a firemen as guest speaker to explain the structural damage to buildings resulting from excessive heat. Write a summary of his main points.

7. Design and build cardboard models of buildings to show fire safety features. Mark where damage might occur with excessive heat. Tie-in with Industrial Arts.

8. Teacher demonstration: The exploding can experiment to show the necessary elements in a gas explosion. List all the necessary elements and their relationship.

9. Discussion to summarize the chemical and physical changes that take place in fires and how to cope with them. Write a summary of the various means of coping with the different kinds of fires.

Materials:

1. Fire blanket
2. Cardboard boxes
3. Plastic wrap
4. Scotch tape
5. Scissors
6. Matches
7. Asbestos or metal base
8. Bottles, vials, stoppers, glass tubing

Materials:- Continued

9. Ring and ball apparatus
10. Bunsen Burner
11. Beakers of water
12. Soda-acid fire extinguisher
13. Tin can with snug fitting lid
14. Films:
    a. "Fire: What Makes It Burn?" (P-I), #1499, 11 min. -- a simple but enlightening explanation
    b. "Things Expand When Heated" (I), #536, 10 min., 1949 -- shows animated molecular motion
    c. "World of Molecules" (I), #1068, 11 min., 1959 -- a good review of theory of matter and of expansion

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Public Service Occupations, Fire Department

INDUSTRIAL ARTS

Purpose: To explore the fields of fire prevention and fire protection with particular attention to fire-fighting equipment and tools.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge of firefighting equipment and tools by:
   a. Listing major items.
   b. Identifying items from drawings/photographs.
   c. Describing the functions of each item.

2. Construct a mockup of a firehouse or fire truck.

3. Direct and evaluate according to a defined scale the activities of individuals or small groups.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Prepare a notebook listing firefighting equipment and tools: names and drawings or photographs.

2. Field trip: Precede Activity 3 by a visit to a local fire house. Make sketches of design of firehouse.

3. Construct a mockup of a fire house and fire truck.

4. Resource person: Have a local fireman speak on his responsibilities and duties, with emphasis on the equipment and tools with which he works when fighting fires. Have the students arrange this visit. Tie-in with Language Arts. Prepare a set of questions to ask concerning the equipment.

5. Organizing and directing the activity of other individuals or small groups in demonstrating the breakdown of a fire extinguisher, using an actual extinguisher including recharge and visual aids. Evaluate the leadership of others with

Activities - Continued

a formal rating scale. Tie-in with Social Studies.

6. Prepare a two- or three-dimensional display showing the fire escape routes for the mini-school.

7. Box diagram of fire truck pumping system.

8. Quest: Prepare poster displays of fire-fighting equipment and tools. The names and brief statements of therr functions should be hidden by index card or comparable hinged masks so that the students can practice naming the items shown, describing their functions, and then getting "immediate feedback" by looking under the masks.

Materials:

1. Fire hydrant (model for demonstration from water department)
2. Fire extinguisher (the kind that is in all shops)
3. Fireman's equipment: hat, boots,axe, oxygen kit, etc.
4. Visual aids:
   a. Charts, diagrams (cut-outs showing parts of hydrant, extinguisher, trucks,etc.)
   b. Drawings and photographs of equipment/tools.
5. Model fire house and fire truck kits (diagrams provided)
6. Films: "The Fire Engine" and "The Fireman"

CLUSTER 1 - Grade 8

PUBLIC SERVICE OCCUPATIONS

Unit/Topic 6 - The Postal System

Topic: The Postal System

Purpose: To broaden students' concepts of the various services of the Post Office.

1. carrier service
2. special delivery service
3. official mail and messenger service
4. maintenance service
5. vehicle operations service
6. vehicle maintenance service
7. postal laboratory
8. international mail service
9. Dulles and National services
10. railway mail services
11. mail by water
12. certified and registered mail services
13. Accelerated and Business Collection Delivery plan
14. metered services for businesses
15. money order services
16. mail inspection

To explore administrative, technical, clerical and manual employment opportunities in the Postal System.

Main Ideas:

1. Occupations in the Washington Metropolitan Area.
2. Widespread nature of the Postal Service.
3. Establishment of the Zip Code.
4. The changing organizational structure from a department to a corporation.
5. Contractual arrangements between the Post Office and private enterprise.

Quests:

1. Operate a Christmas Post Office.
2. Design stamps depicting persons who promoted an efficient postal service (e.g., Benjamin Franklin) or events of the Space Age.
3. Find out the origin of slogans stamped on the face of envelopes.
4. Bring stamp collections to share with the class.
5. Begin a stamp collection.
6. Write the history of the postal service, "Pony Express to Now."
7. Find outstanding Blacks who have been honored by commemorative stamps.
8. Make a pictograph of beginning services of the public utilities (postal services, included) as they extend to homes.

Quests -- Continued

9. Bring or send to class sets of postal publications listed on page 13 of the booklet, "The Washington, D. C. Post Office."
10. Use the opaque projector and make color enlargements of famous stamps.
11. Go to the National Gallery of Art to see (and buy) the original paintings from which many of our commemoration stamps have been made.

Career Opportunities:

1. Semi-Skilled

   Inspector, laboratory aide, mail carrier, mail clerk, mail handler, postal clerk (general and special), security guard, time/leave clerk, truck driver

2. Skilled

   Burroughs machine operator, computer operator, foreman, sorter, supervisors, tour superintendent, training officer

3. Professional

   Accountant, artist, economist, F.B.I. agent, lawyer, postmaster, systems analyst, treasury agent, librarian, statistician

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Public Service Occupations, The Postal System

LANGUAGE ARTS

Purpose: To acquire an overview of the many services of the post office.

To explore the various job roles in the postal system.

To develop language arts competency in view of possible postal employment.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge of the postal system by:

   a. Listing various services and describing each briefly.
   b. List various occupational opportunities within the postal system.
   c. Describing at least one such occupation: title, responsibilities and duties, entry requirements, salary range, advancement, etc.

2. Summarize information read independently.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Read independently informational pamphlets obtained from the post office.

   a. Prepare oral, taped or written summaries.

2. Prepare a notebook on the postal system, including a list and description of services, a list of occupational opportunities, and a description of at least one occupation.

   a. Base this notebook partly on the work in Activity 1 above.
   b. As feasible, supplement the occupation description with an interview of a person currently doing that job.

3. Quest:

   a. As a group, prepare an audio-visual presentation of "Using Your Postal Services," including both the narrative script and the illustrations. As

Activities -- Continued

feasible, develop this as an audio-tape/film strip presentation.

b. Bring in their stamp collections and compare them.

c. Research the process by which a stamp is developed: decision as to content, design, printing, and distribution. Tie-in with Social Studies. Make a display of the process. Tie-in with Graphic Arts.

d. Prepare questions with which to test reading comprehension of excerpts from literature on the postal system; have other students take the tests.

e. Prepare a display of the "Pony Express." Tie-in with Social Studies, Art.

4. Field trip: Visit the National Gallery to view original paintings from which many of our famous commemorative stamps have been made. Write a description of one of these pictures. Tie-in with Art.

5. View the film, "The Pony Express."

   a. Prepare an oral or written report on one or more of the filming techniques used and illustrate it with simple drawings. Tie-in with Art.

6. View the film, "Postal Workers."

   a. Write a critique.

7. View the Film, "Your Study Methods."

   a. Assess your own study methods using a checklist prepared by students from the film. Tie-in with Social Studies.

8. Design and execute Mr. Zip posters for the Minischool. Tie-in with Art.

9. Test reading:

   a. Determine their words-per-minute reading speed. Tie-in with Mathematics.

   b. Have a team competition in which members take turns reading and then summarizing orally excerpts from

Activities -- Continued

literature on the postal system, with points awarded for each point covered in the summary.

Materials:

1. Films:
   a. "The Pony Express" (Twining #1961)
   b. "Postal Workers" (Twining # 1126)
   c. "Your Study Methods" (Twining # 1720)
2. Camera, film; tape recorder, tapes or cassette recorder, cassettes.
3. Mr. Zip posters from the post office
4. Booklet: "Washington, D.C. Post Office"
5. Pamphlets on various postal services from post office

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Public Service Occupations, The Postal System

MATHEMATICS

Purpose: To explore some of the uses of mathematics in operating the postal system, including the usefulness of mathematics as it relates to being a successful postman.

Objectives: Upon completion of work in this unit, the student should be able to:

1. Add, multiply and subtract whole numbers (rounded off to the nearest dollar).

2. Describe a money order.

3. Use fractional numerals to represent a part of a whole, a part of a group, or an indicated division.

4. Calculate a salary based on regular hours and overtime pay.

5. Arrange a given set of common fractions in increasing or decreasing order; to perform the fundamental operations of addition, subtraction and division in determining fractions; and to convert fractions to decimal forms and conversely.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Assuming the role of a post office clerk and calculate the cost of purchasing several money orders (round off to the nearest dollar).

   a. Also calculate the cost of non-postal money orders and compare the cost with that of postal money orders.

2. Calculate the cost to the Post Office resulting from employees' overtime pay. Do the research necessary to determine regular and overtime pay rates. Tie-in with Social Studies.

3. Quest:

   a. Prepare an oral or written report on the matter of overtime pay for postal employees: the manner in which it is calculated, the amount of such pay for the Washington, D.C. office last year and the fraction this is of the total budget, the

Activities -- Continued

causes of overtime work, etc. Tie-ins with Language Arts, Social Studies.

b. Calculate the cost of mailing various parcel post packages, both locally and nationally. Calculate the insurance needed for various estimated values of packages. Determine the postal service requirements for weight, wrapping, and other aspects of packages for them to be acceptable to the postal parcel post service. Tie-ins with Social Studies, Language Arts (communication skills).

4. Calculate the estimated additional income for the postal service based on the volume of mail in different categories handled annually and the latest rate increases.

   a. Do the research to obtain the needed information for doing 3 above. Tie-in with Social Studies.

5. In conjunction with Activity 3 above, determine the fraction of income per year from each classification of mail in the postal services; express also as percents. Put them in increasing and decreasing order. Convert them to decimal form.

Materials:

1. Charts
2. Colored pens, colored crayons
3. Money order forms
4. Parcel post forms

Career Development Curriculum Guide: Grade 8
Public Service Occupations, The Postal System

SCIENCE

Purpose: To learn how electronic aids and electro-mechanical methods speed the processing of the mass of mail handled by large post offices.

The amount of mail sent by businesses and individuals would be impossible to keep up with and still maintain a reasonable delivery cost if it were not for electronic facing and cancelling equipment.

Objectives: Upon completion of work in this unit the student should be able to:

1. Demonstrate knowledge that light energy can produce an electric current; specifically:

   a. State that it can.
   b. Describe one or more ways in which it can happen.
   c. Predict the outcome of one or more arrangements by which it can happen.

2. Describe how energy can be changed from one form to another. List the changes in form of energy for:

   a. a flashlight: mechanical (Move switch to "on"); chemical to electrical (batteries produce current electricity); electrical to light and heat (current heats filament to yellow-hot temperature producing light).

   b. Automobile ignition system: mechanical to electrical (the engine turns the belt turning the generator); electrical to chemical to mechanical (spark ignites gasoline causing an explosion which forces the piston down).

Activities: To accomplish these objectives the student may engage in activities such as:

1. Obtain information about the volume of mail handled on an average day by the Main Post Office, and use this to discuss the problem of efficient handling of masses of mail. Tie-ins with Mathematics (calculating average daily volume), Social Studies (research skills).

2. Teacher explanation of the elements of the Post Office Facer-Canceler Machine (Pitney Bowes Mark II).

Activities -- Continued

3. Teacher demonstration of an operational photoelectric cell hooked to a galvanometer. Vary the intensity of the stimulus light to show "go" and "no-go" conditions. List the "go" and "no-go" condition .

4. Teacher demonstration of a photoelectric cell wired to operate a doorbell. Trace the energy changes from the beam of light to the movement of the bell clapper. Tie-in with Industrial Arts to prepare a display board showing photoelectric control of some device.

5. Have a supply of old magazines in the room that pupils may use for picture sources. Bring in labeled diagrams or advertisements mounted and labeled.

6. Teacher-led review to summarize all forms of energy studied to date that can be changed to electric energy, including alternate means for making the conversions.

7. Pupils draw diagrams of energy changes as described above on this page, or bring in schematic diagrams from Popular Mechanic-type magazines (Popular Electronics) or advertisement-pictures of automobiles, refrigerators, air conditioners, heaters, washing machines, etc. and label the form of energy that is an input to operate it and the form of energy it is designed to deliver. Representative students explain their diagrams or labeled ad orally.

8. Teacher draws a block (functional) diagram of the essential parts of the Mark II facer-canceler machine. Student may write a description of any energy change that occurs while the machine is in operation.

9. Quest: Prepare an oral or written report on recent developments in the automatic processing of mail. Tie-in with Language Arts, Social Studies.

Materials:

1. Photoelectric cell
2. Galvanometer
3. Photoelectric relay board
4. Information sources about postal service: "Washington, D.C. Post Office" (pamphlet)

Career Development Curriculum Guide: Grade 8
Public Service Occupations, The Postal System

SOCIAL STUDIES

Purpose: To explore the wide range of occupational opportunities within the postal system while learning about some of the reasons why it is critically important to an enlightened and progressive society.

Objectives: Upon completion of work in this unit, the student should be able to:

1. State reasons why the postal system is indispensable.

2. Compare and contrast our present-day postal system with that of our early days.

3. State reasons for using the zip code system: how it helps the postal system, how it helps us; to include a description of what zip code means and how it works.

4. List occupational opportunities within the postal system and describe at least one: title, responsibilities and duties, entry requirements, salary and advancement, etc.

Activities: To accomplish these objectives the student may engage in activities such as:

1. High Impact: Set up a postal service for the Minischool and have it used for distributing assignments, memos, etc., among and between staff and students. Tie-in with Industrial Arts to design and build facilities: central office, mail boxes, etc.

2. Field trips: After developing lists of occupational opportunities in the postal system (See Language Arts, Activity 2) have the students make field trips to post office facilities, local or downtown, as a prelude to their preparing a report on one such occupation.

3. A group preparation of displays showing the status of the postal system and its services at various points in American history and post these as a "panorama." Tie-in with Art.

Activities -- Continued

4. Open discussions:

   a. The likely consequences of a prolonged postal strike after various time periods: day, week, month.
   b. The pros and cons of laws prohibiting strikes by public service employees.
   c. The zip code: how it works and the assumed benefit to the post office and the consumer.

5. Quests: Oral/written reports on topics such as the following: (Tie-in with Language Arts):

   a. The reasons for changing the postal system from a public to a private agency; possible implications for employment of Blacks.
   b. The rules and regulations of the Dead Letter Office.
   c. The various types of mail: first class, air mail, parcel post, special delivery. Tie-in with Mathematics.)
   d. The various forms of transportation used in the delivery of mail.
   e. The issue of how private "private first class mail" should be; specifically, under what conditions is the postal service constitutionally permitted to open private first class mail, and the student opinions about this.

1. Materials available free at the Washington, D.C. Post Office, Massachusetts Avenue and North Capitol Street:
   a. "Washington, D.C. Post Office"
   b. "Domestic Postage Rates and Fees" (POD Publication 3 or POD Notice 59)
   c. "International Mail" (POD Publication 51)
   d. "How to Pack and Wrap Parcels for Mailing" (POD Publication 2)
   e. "How to Address Mail" (POD Publication 28)
   f. "How to Prepare 2nd and 3rd Class Mailings" (POD Publication 21)
   g. "Mailing Permits" (POD Publication 13)
   h. "Postal Zip Code Director for Washington, D.C."

Materials -- Continued

2. Also available from Washington, D.C. Post Office:
   a. Printed stickers for use on air mail
   b. Stickers for use on special delivery, first class and certified mail

   NOTE: The Washington, D.C. Post Office telephone number for general mailing information (obtainable 24 hours per day) is: WO1-8201).

Career Development Curriculum Guide: Grade 8
Public Service Occupations, The Postal System

BUSINESS EDUCATION

Purpose: To broaden the students' concepts of the many services of the postal system and administrative, technical, clerical, and manual employment opportunities within it.

Objectives: Upon completion of work in this unit, the student should be able to:

1. List and describe at least one job opportunity within the postal system.
2. Describe one of the jobs in the Minischool postal system.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Field Trip: Visit the Post Office, central or local. Type a contrast of this post office with that of the Minischool.
2. Organize and operate a Minischool postal system as part of this general, continuing activity for this module. Each student could make a job description for one duty within this postal system.
3. Organize a Secret Pal Club in the Minischool and send birthday cards through the Minischool post office.
4. Typing of numbers and addresses to continue skill building at the typewriter.

Materials:

1. Postage stamps
2. Stamped envelopes
3. Date stamp
4. Postage scale

BUSINESS EDUCATION

Public Utilities

1. As a tie-in with Social Studies, Quest #3, we will prepare a "Thought Starter."

2. As a tie-in with Language Arts, Activity #3, we will assist students in typing final copy of suggested essay.

Law Enforcement

1. See Career Related Skills as outlined in conjunction with Activity #1 of Language Arts. (Storage and retrieval). Also see Activity #5 of Social Studies. (Filing newspaper clippings).

2. As a tie-in with Social Studies, Activity #5, we will prepare a "Thought Starter."

Fire Department and Postal Service

All subject areas that have planned activities under this topic should feel free to contact Business Education for any assistance or technical help that we might offer.

Career Development Curriculum Guide: Grade 8
Public Service Occupations, The Postal System

INDUSTRIAL ARTS

Purpose: To explore industrial arts aspects of the operation of postal services, including safety considerations.

Objectives: Upon completion of work in this unit the student should be able to:

1. Discuss the safety aspects of the operation of the postal system; specifically, its maintenance operations.

2. Describe industrial arts activities involved in the postal system's maintenance operations.

Activities: To accomplish these objectives the student may engage in activities such as:

1. Field Trip: Visit the Maintenance Department of the Main D.C. Post Office, followed by resource person from that office discussing the maintenance operations with particular attention to safety rules, regulations and practices. Write a summary of the various maintenance operations.

2. Quests:
   a. A group of students develop a display showing the various kinds of vehicles used for transportation in the postal services, with a description for each of how it is used.
   b. Teams of students each prepare a display of a particular safety practice.
   c. Prepare a simple model cancelling machine using individual dyes for inclusion in Activity 3.

3. Design and print a special stamp for use in the Minischool Post Office. Tie-in with Art.

Materials:

1. Belting
2. Pulleys
3. Rollers
4. Lumber
5. Linoleum blocks
6. Visual aids

ART

Public Utilities

1. Design a community bulletin board dealing with public utilities.

2. Assist teachers in designing and mounting bulletin boards for the individual disciplines.

3. Make a collage of pictures related to public utilities services.

Law Enforcement

1. Make a series of drawings showing evolution of police uniforms in the U.S.

2. Make drawings of police uniforms in other countries.

Community, Social and Health Services

1. Make posters dealing with major community health and social problems and the agencies which are in a position to give aid. These can be silk screened and distributed to drugstore, libraries, pool halls, community centers, etc.

Fire Department

1. Construct model fire engines which show the evolution of firefighting equipment.

2. Design fire prevention posters that deal with flammables, forest fires, home safety precautions, etc.

The Postal System

1. Study history of Stamp Design.

2. Design stamps using as design subjects special holidays, Black history, Minischool, etc.

PHYSICAL EDUCATION

Public Utilities

1. Tie-in each discipline on Public Utilities with Games.
2. Construct a bulletin board on occupation opportunities in physical education through public utilities.
3. Organize Clubs, (ex) Swimming Club. Tie-in with Social Studies.

Law Enforcement

1. Tie-in some of the disciplines on Law Enforcement with games.
2. Design games that will include some of the policeman's duties, etc.

Community, Social and Health Services

1. Tie-in each discipline with games.
2. Make scrapbooks on physical education occupations in community, social and health services.
3. Tours to see people in these occupations at work; (ex) Sharpe Health School to see the therapists work.
4. Organize an "Evening of Fun for Parents." They will play games that tie in with occupations.

Fire Department and Post Office

1. Tie-in the disciplines through games.
2. Construct posters on the safety features involved.